

FIG.1

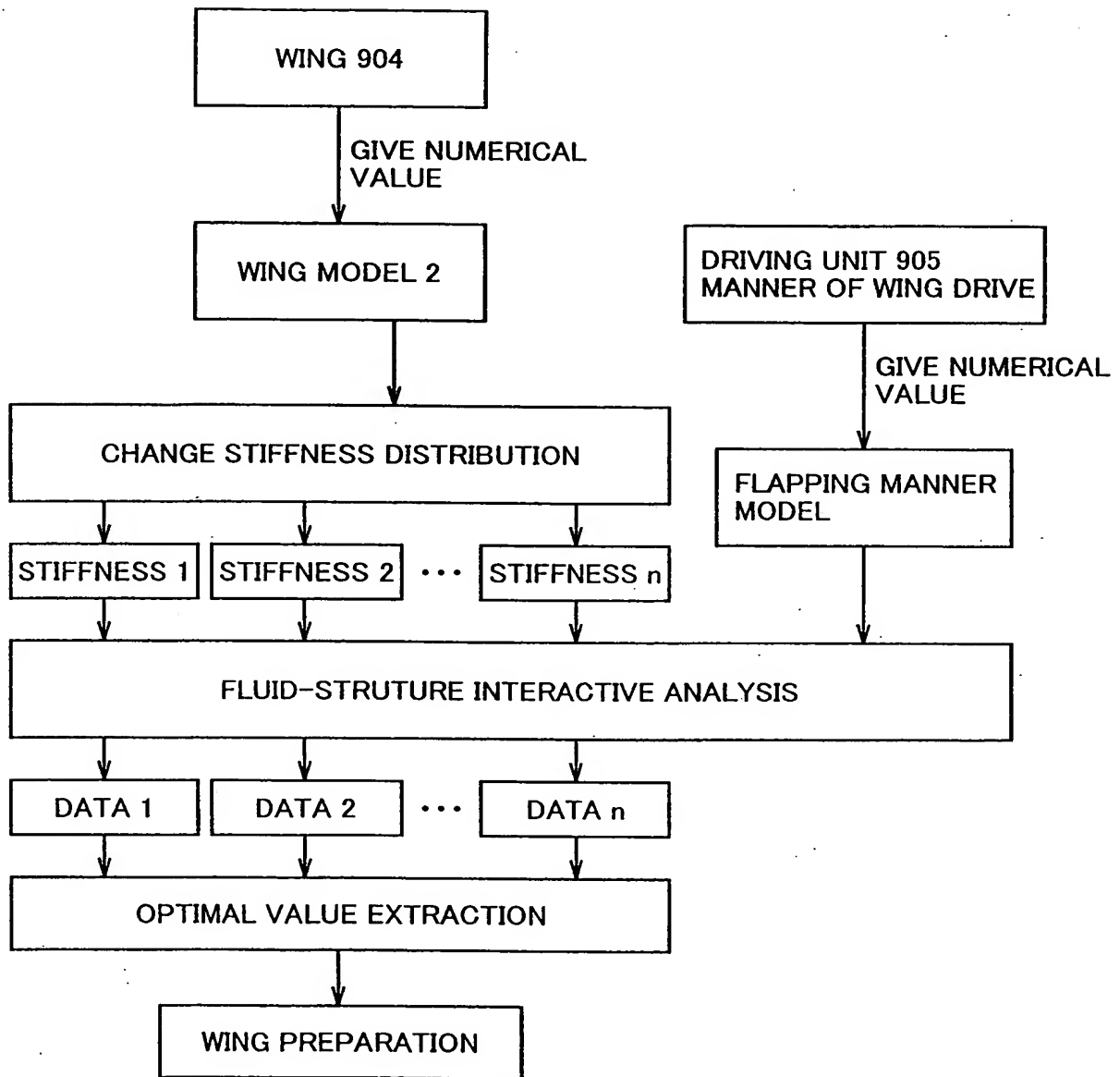


FIG.2

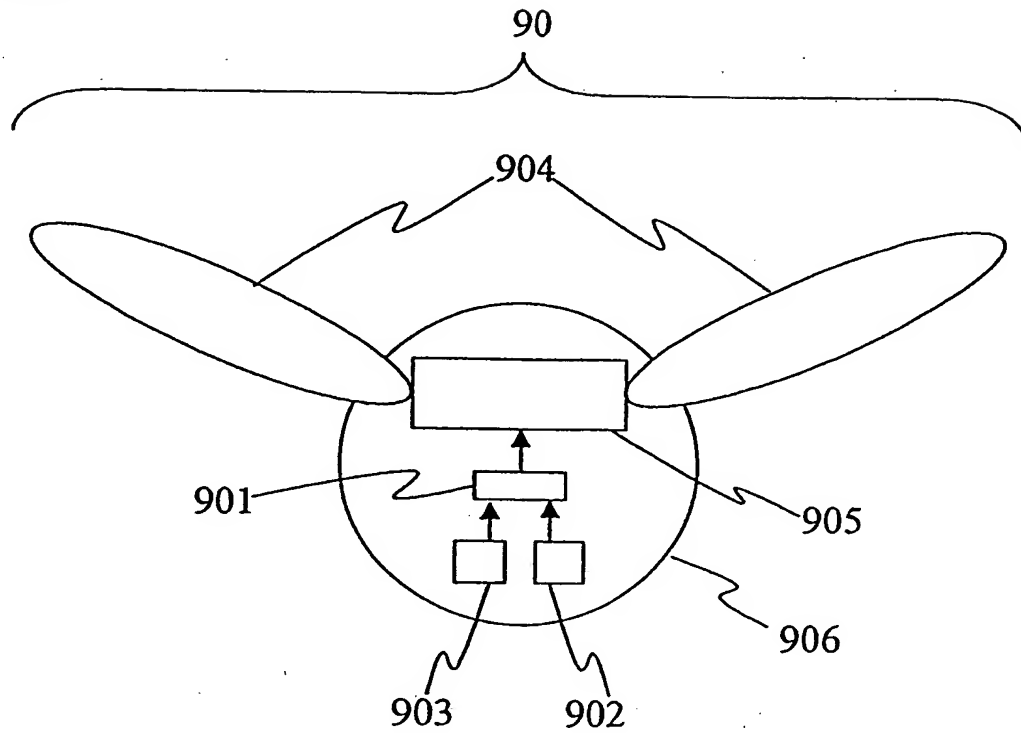


FIG.3

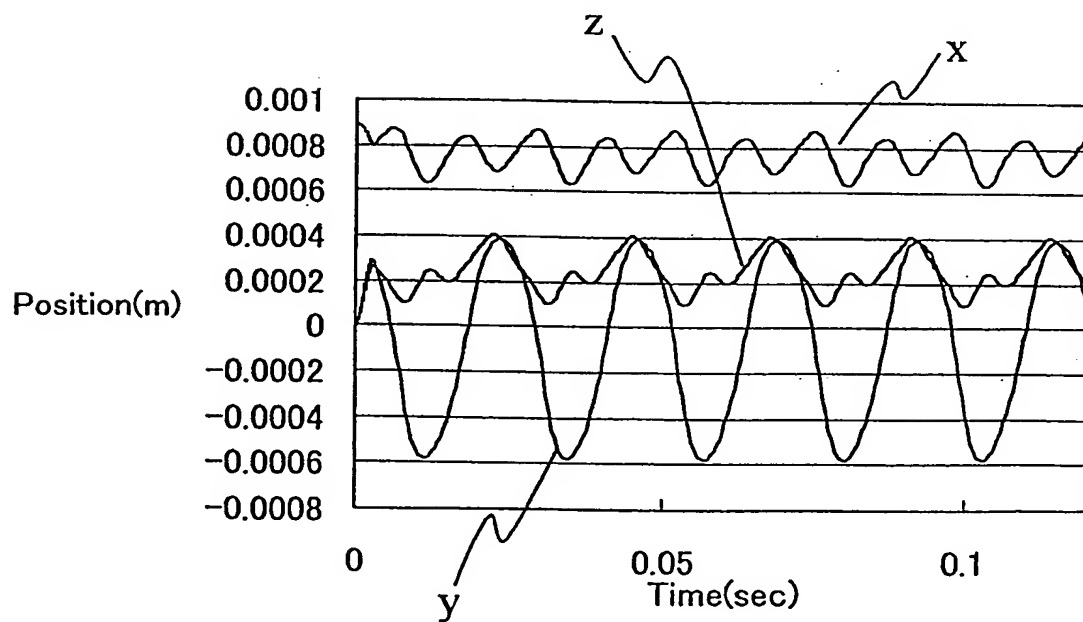


FIG.6

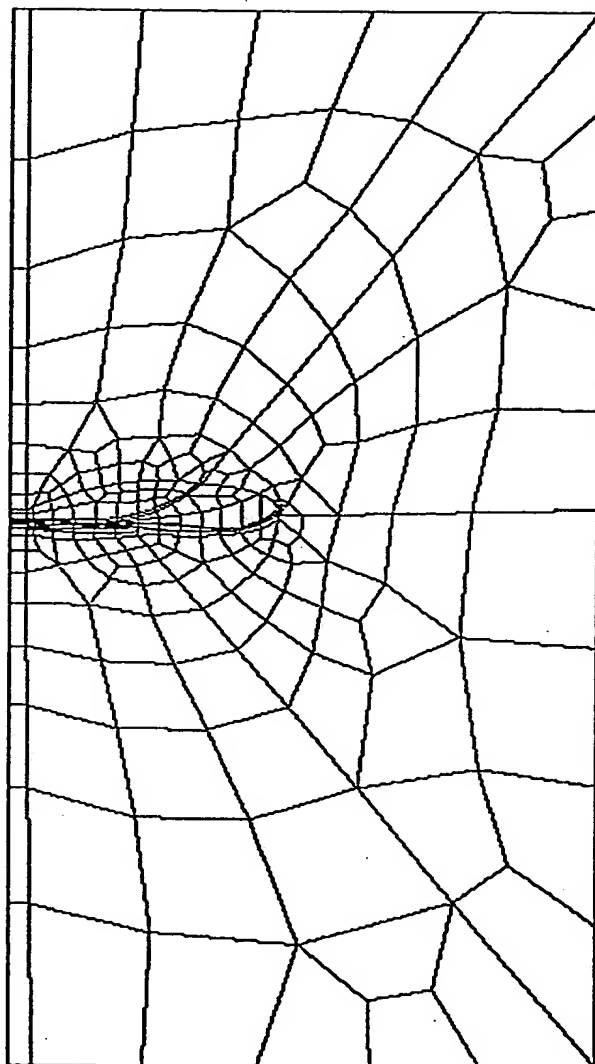


FIG.7

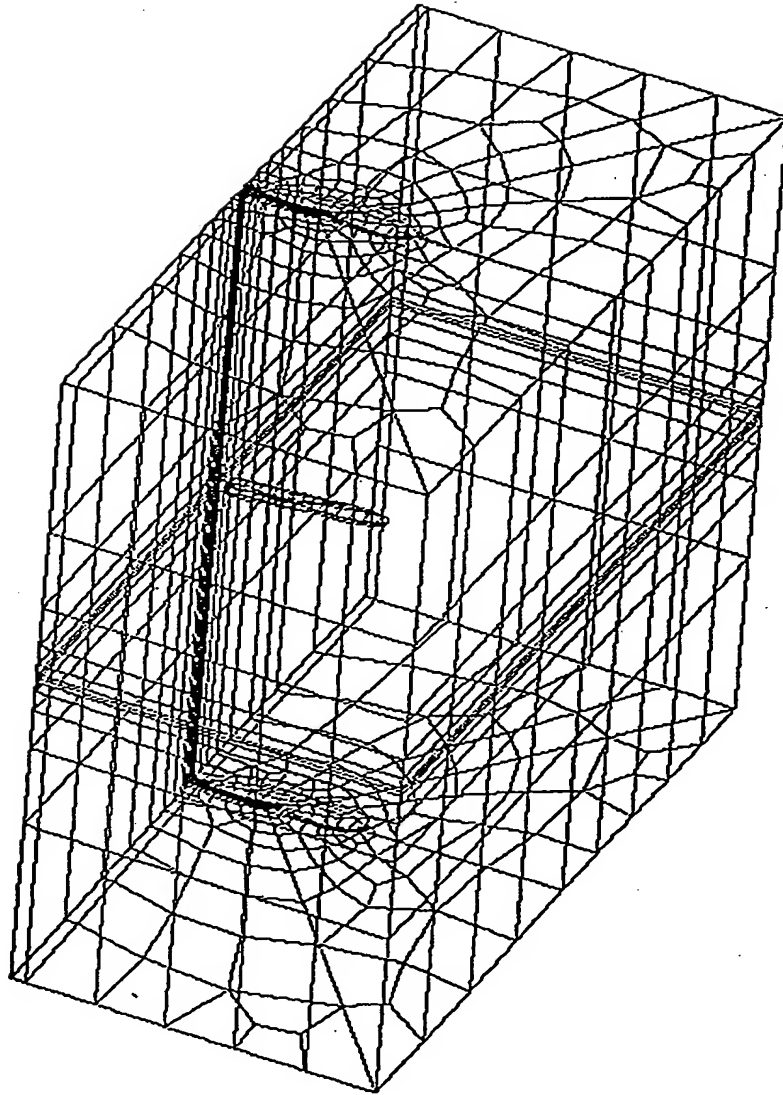


FIG.8

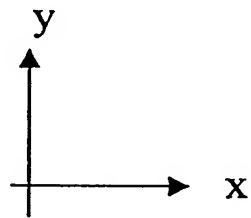
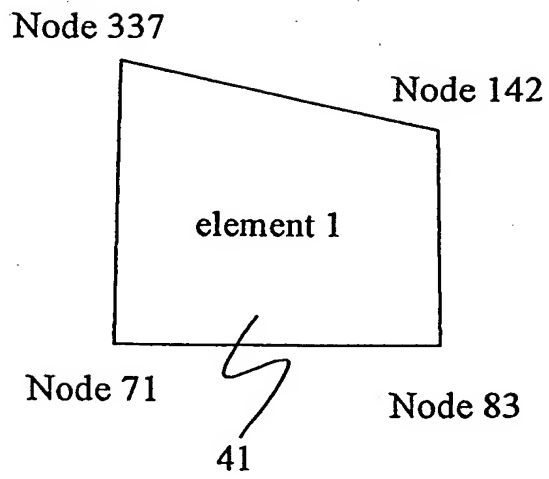


FIG.9

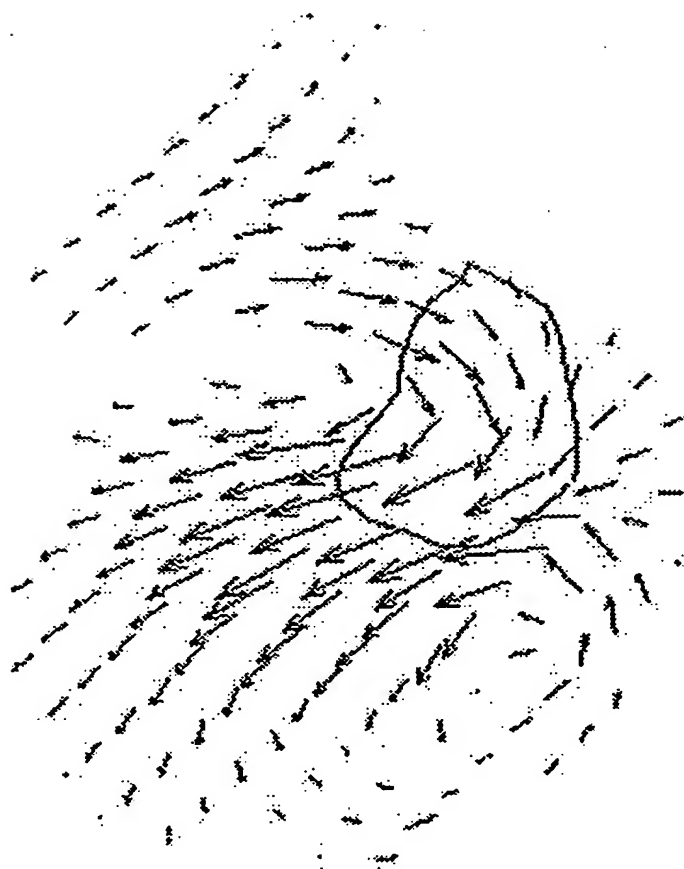


FIG.10

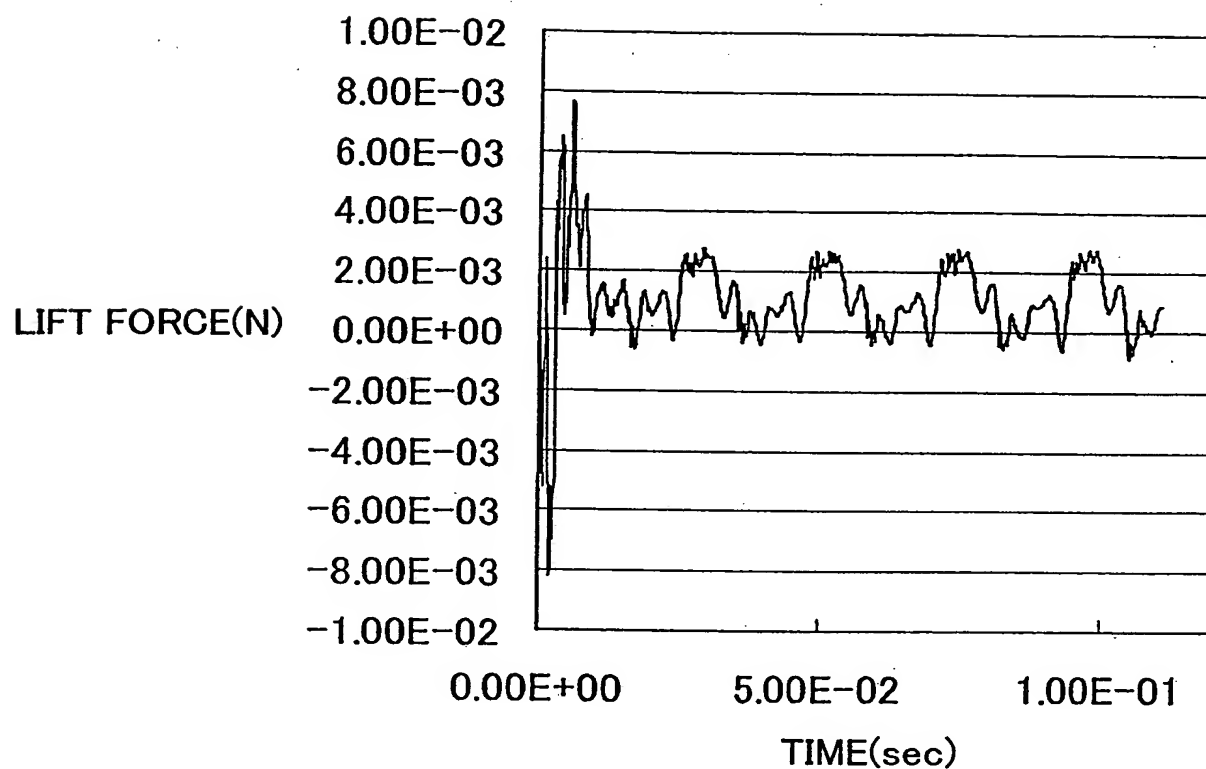


FIG.11

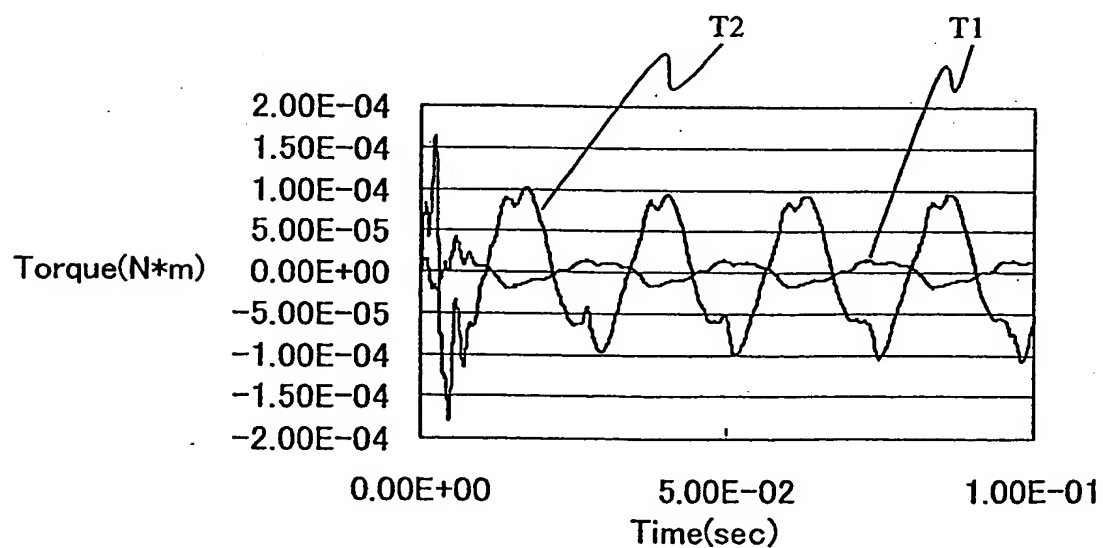


FIG.12

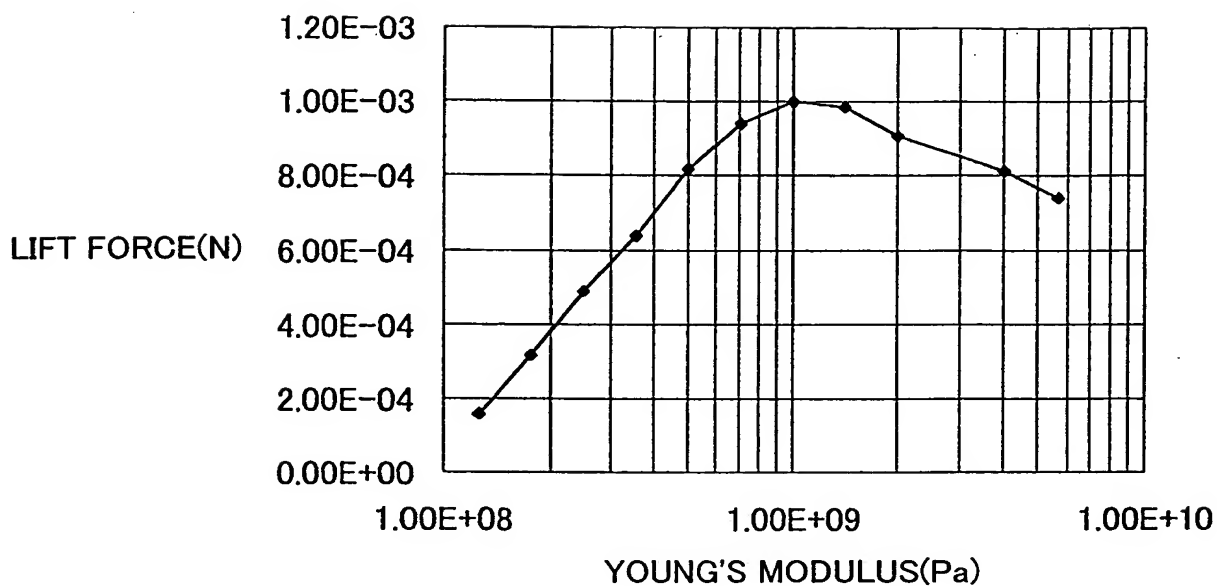


FIG.13

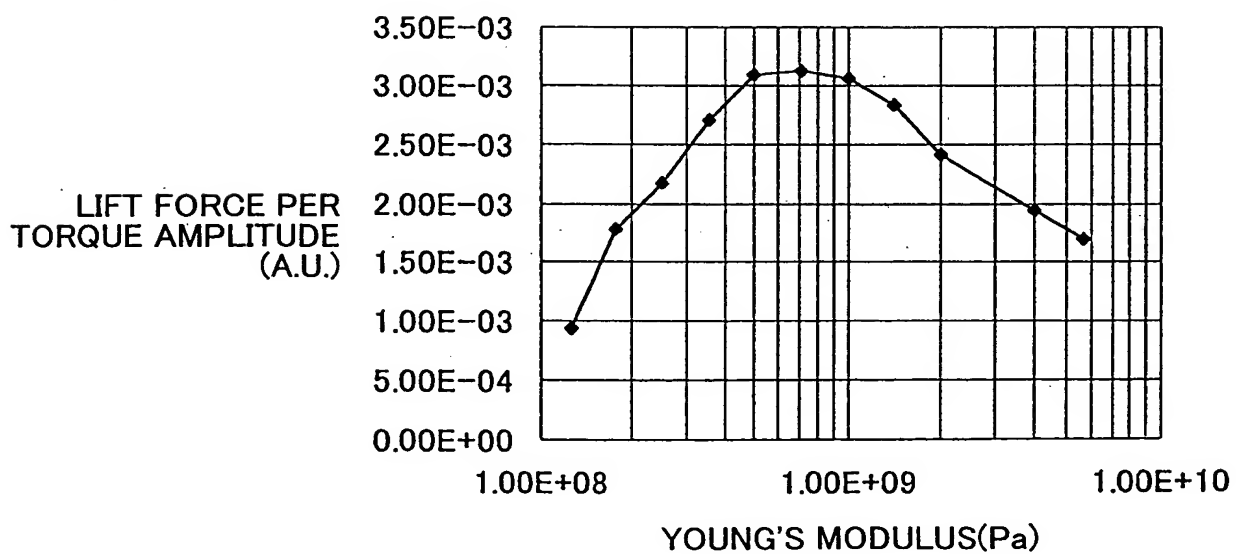


FIG.14

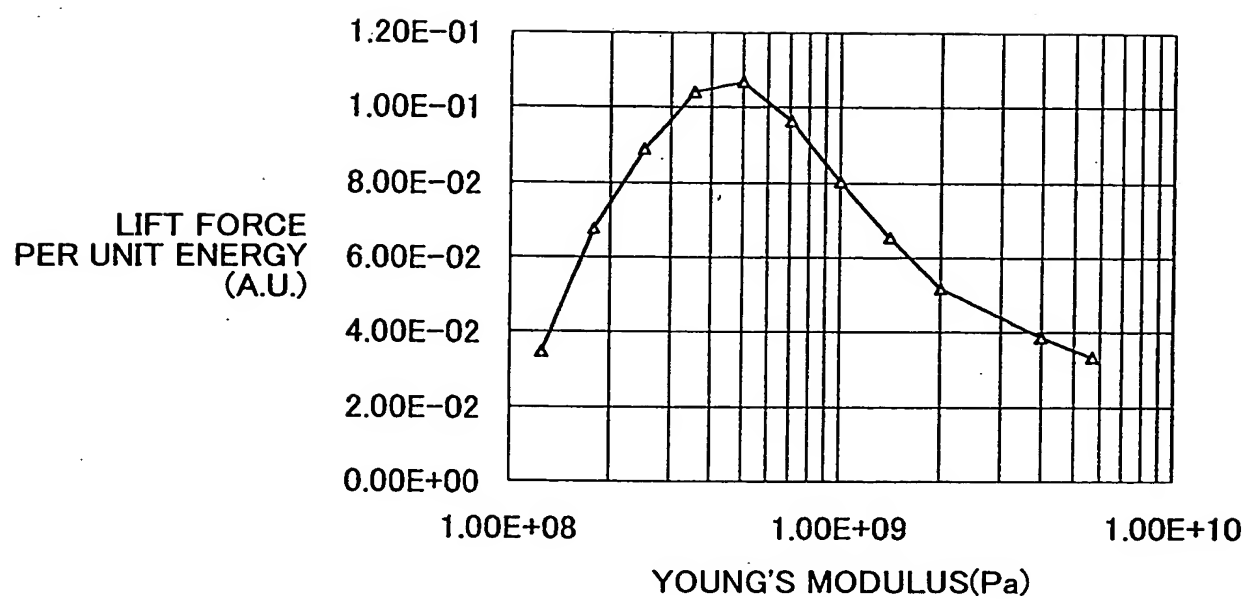


FIG.15

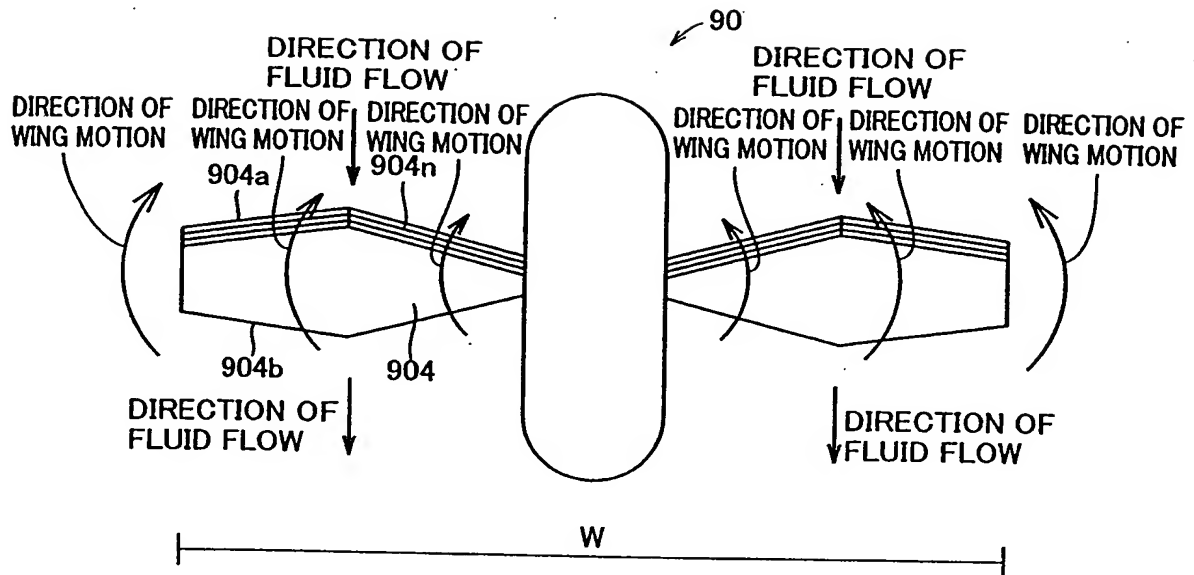


FIG.16

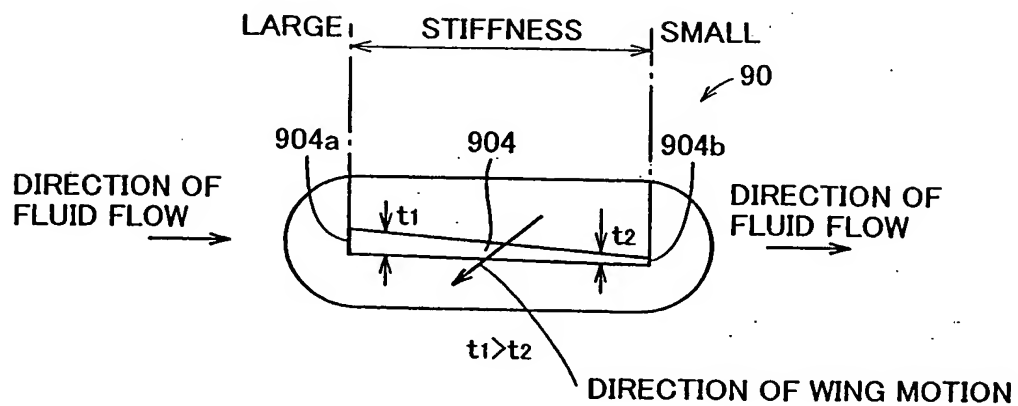


FIG.17

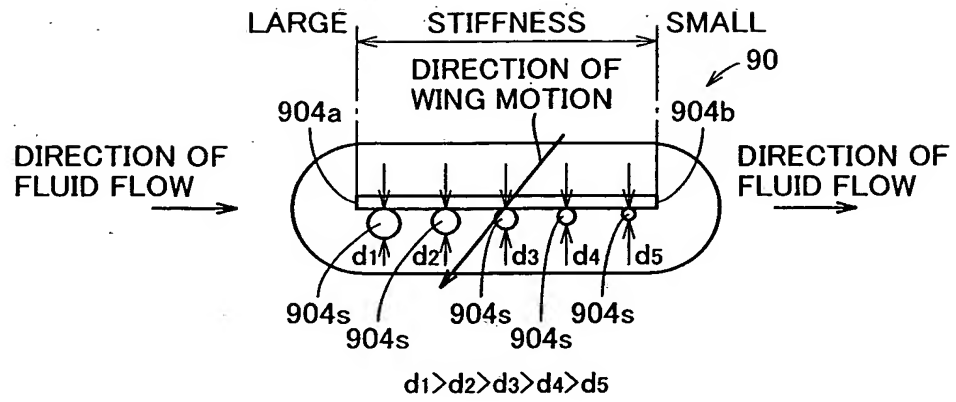


FIG.18

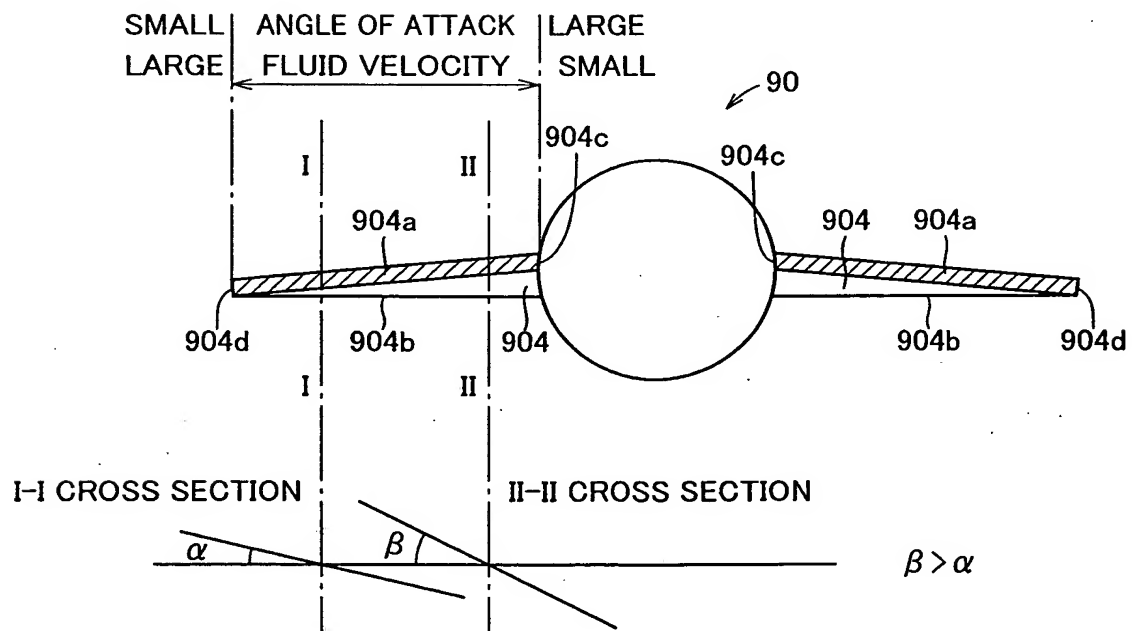


FIG.19

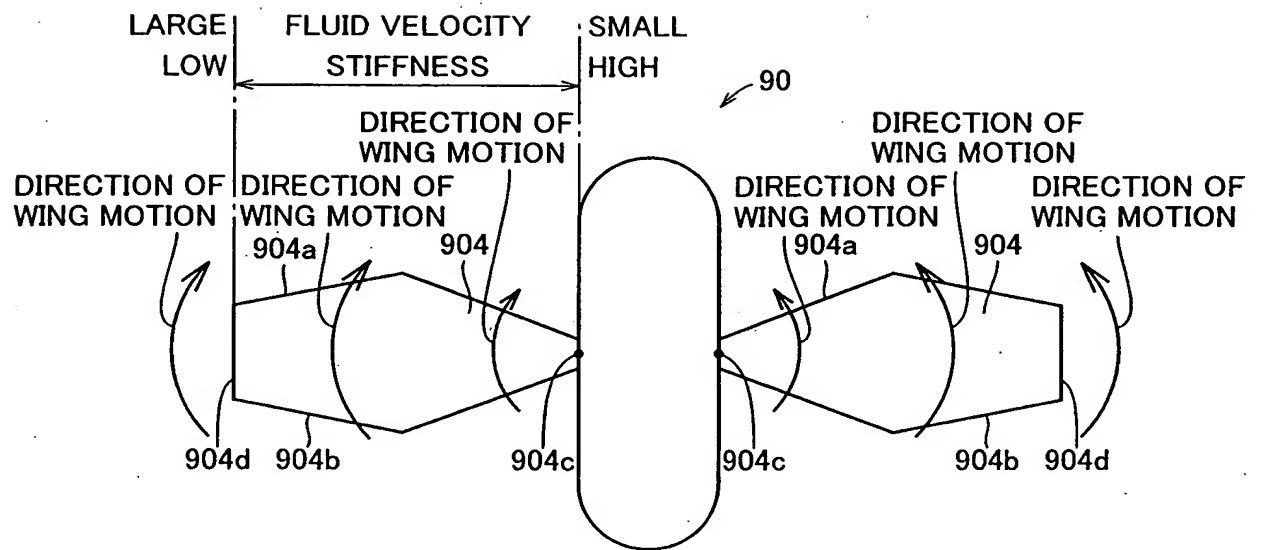


FIG.20

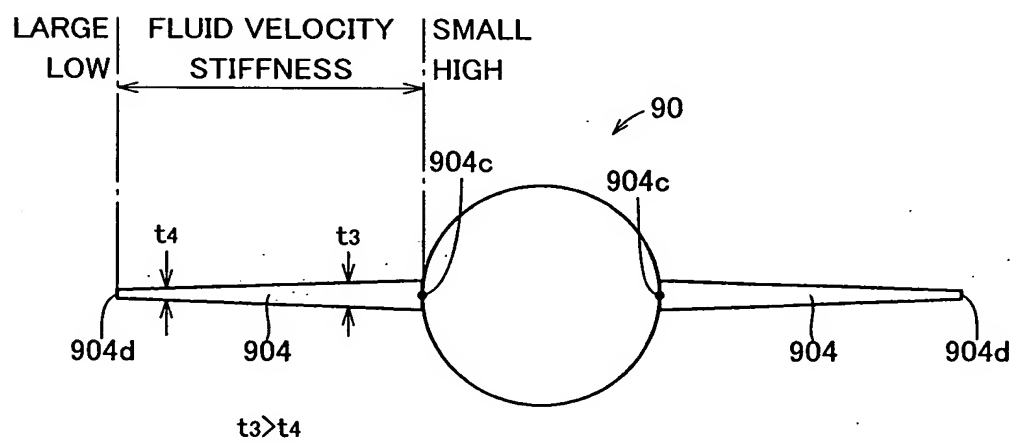


FIG.21

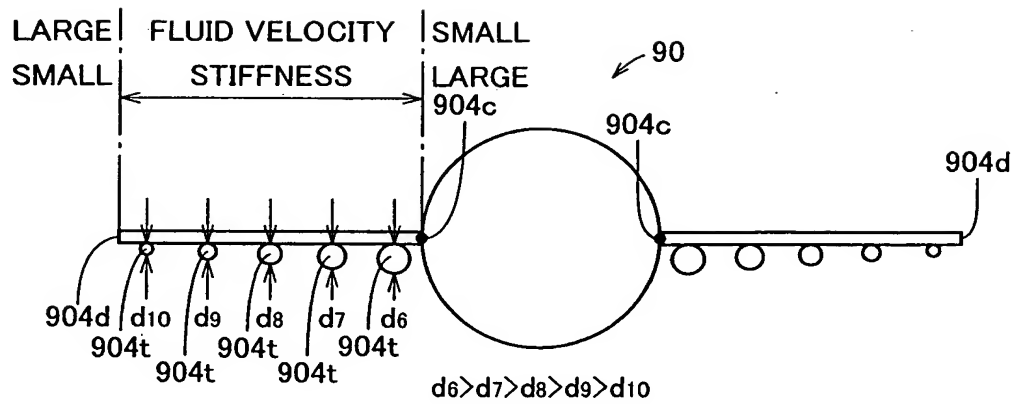


FIG.22

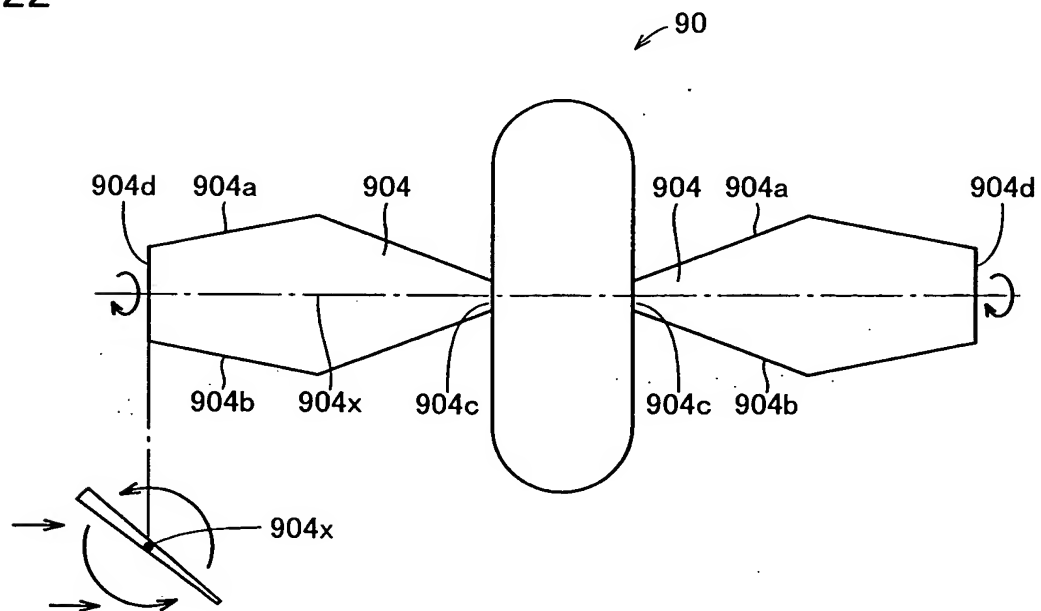


FIG.23

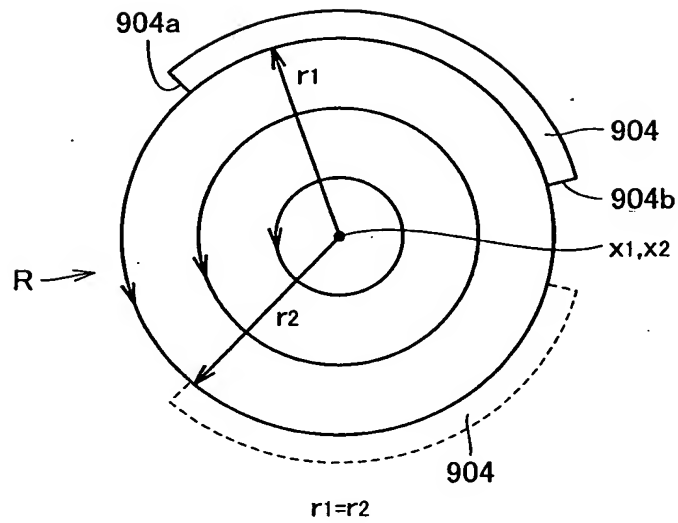


FIG.24

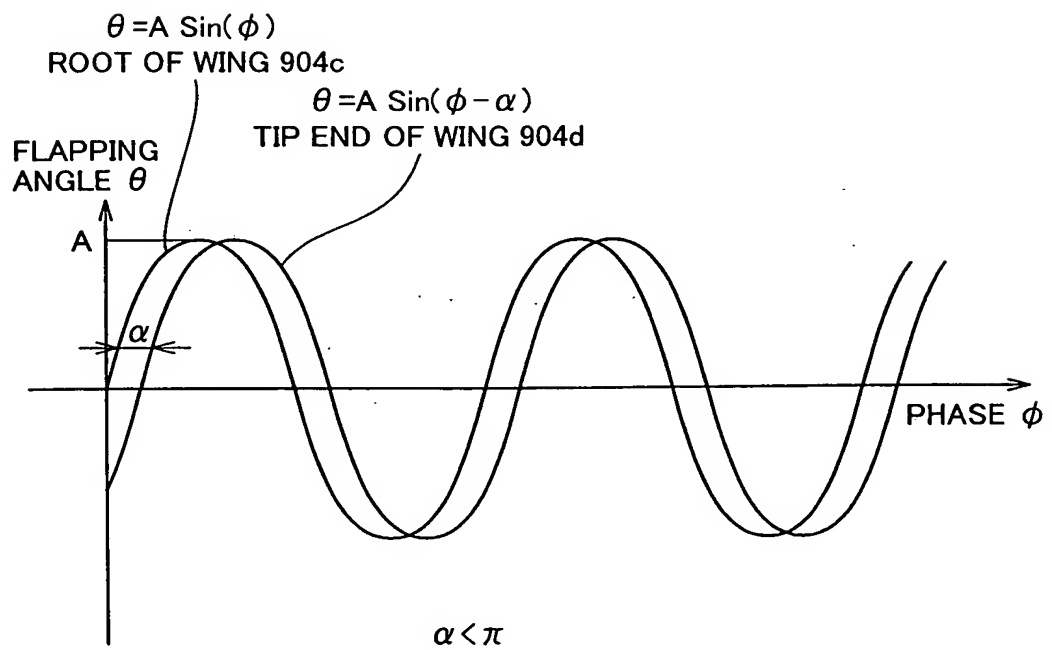


FIG.25

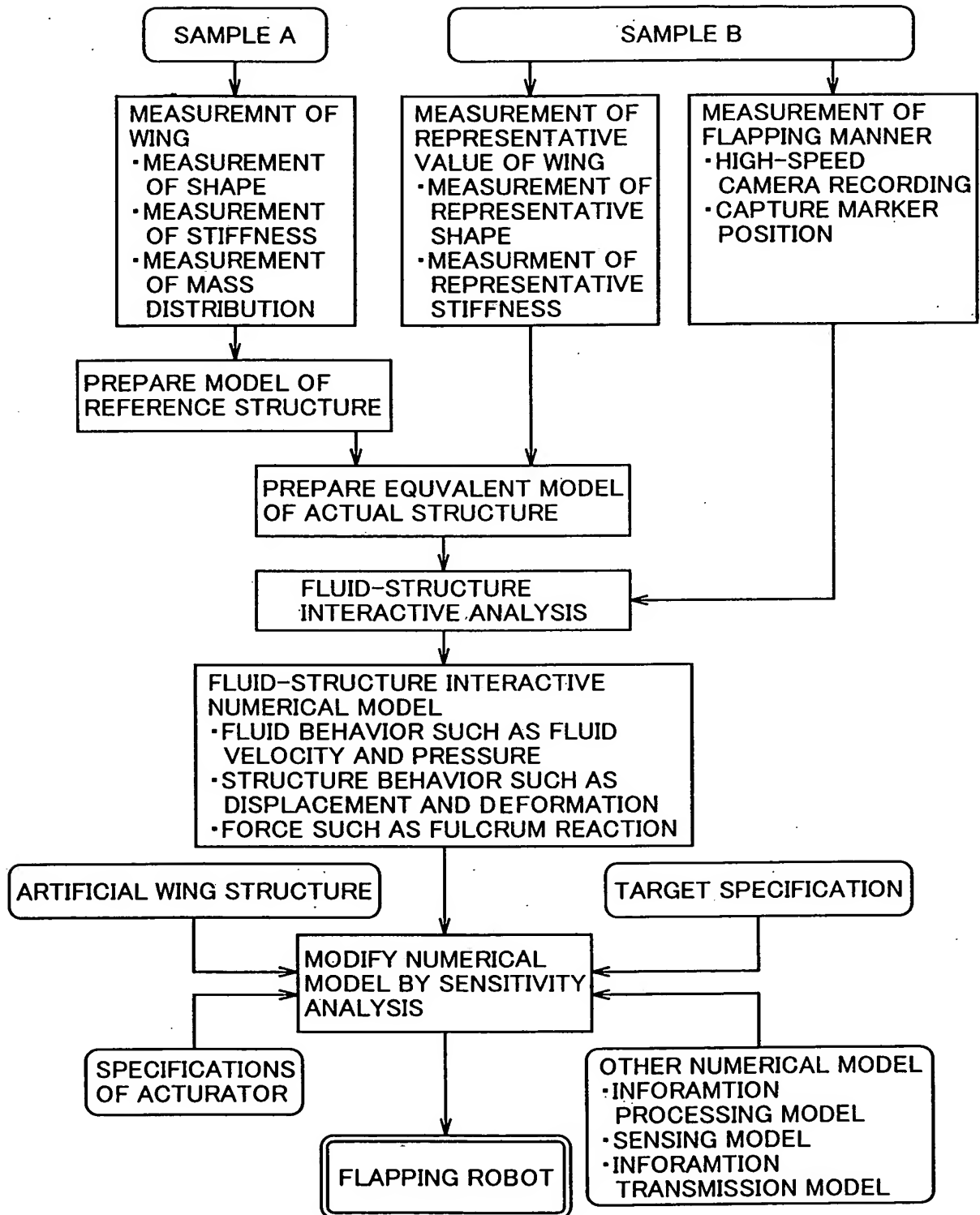


FIG.26

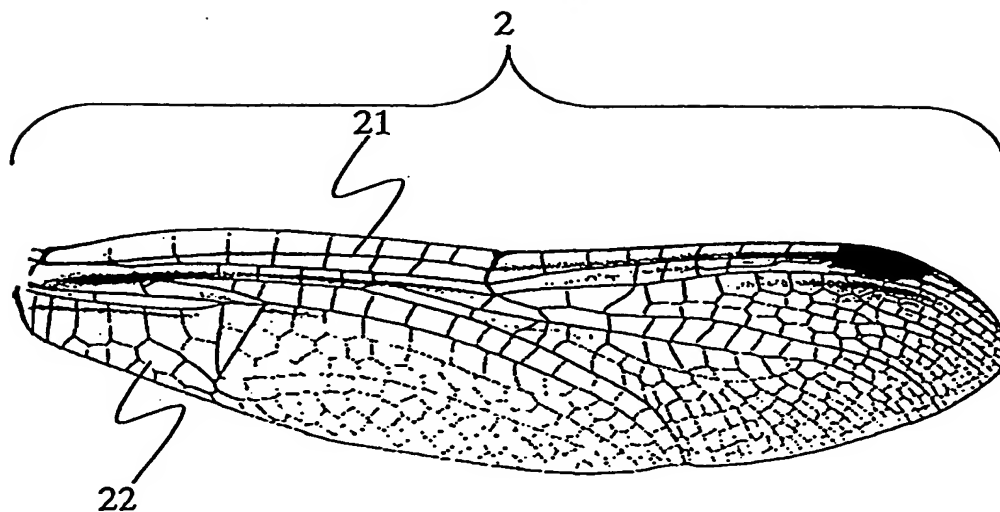


FIG.27

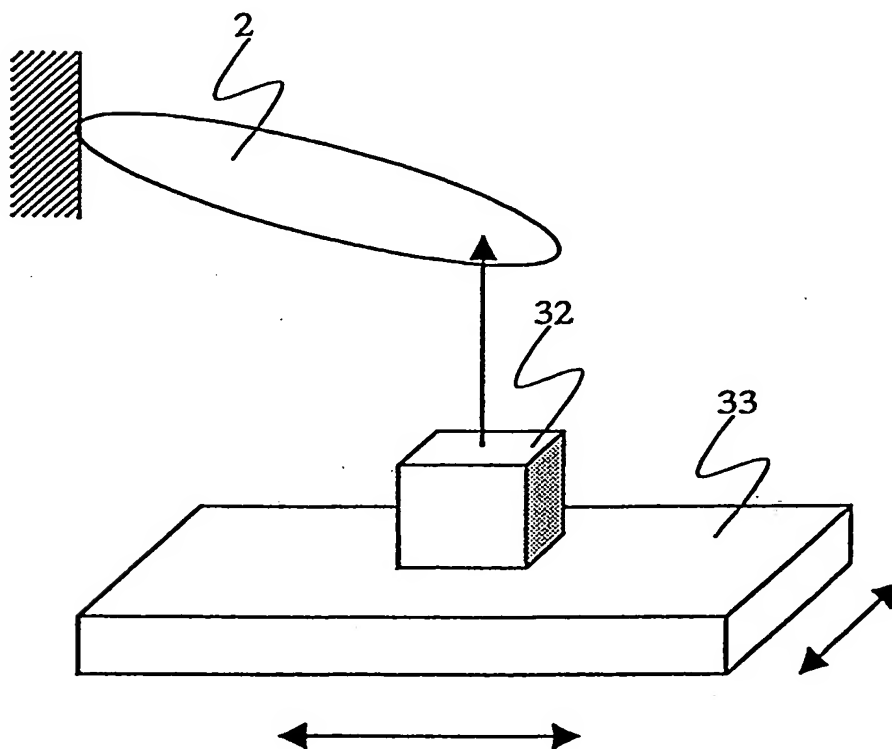


FIG.28

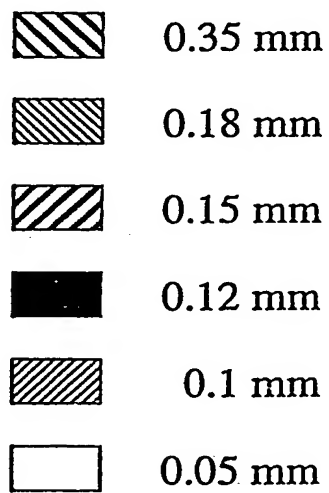
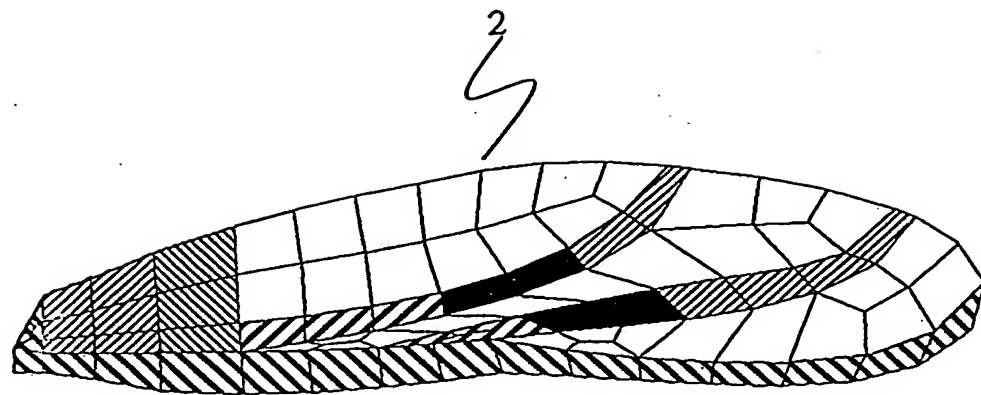


FIG.29

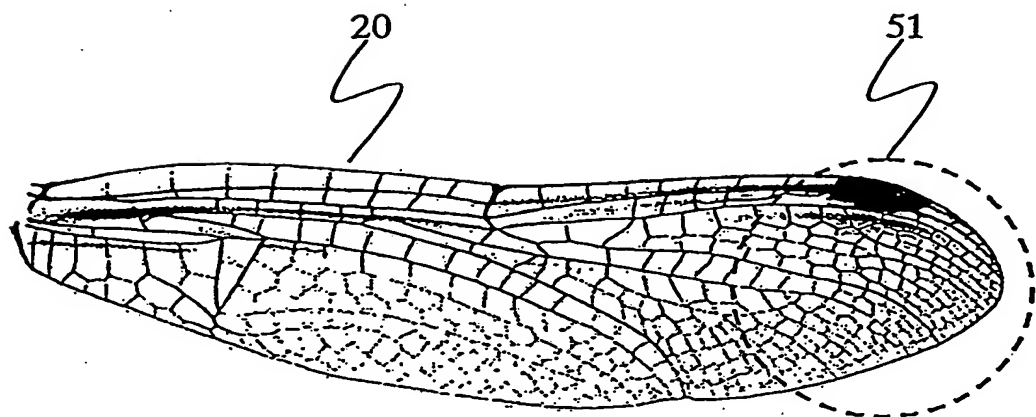


FIG.30

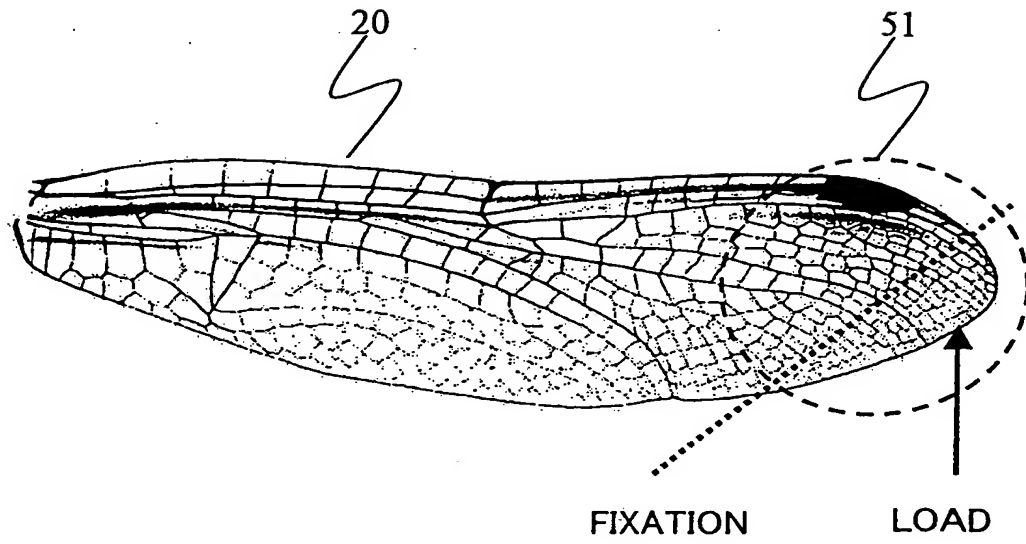


FIG.31

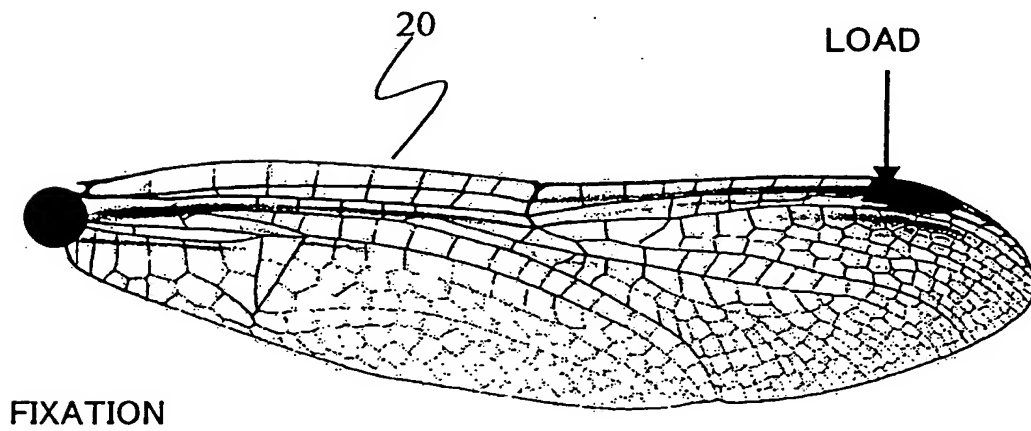


FIG.32

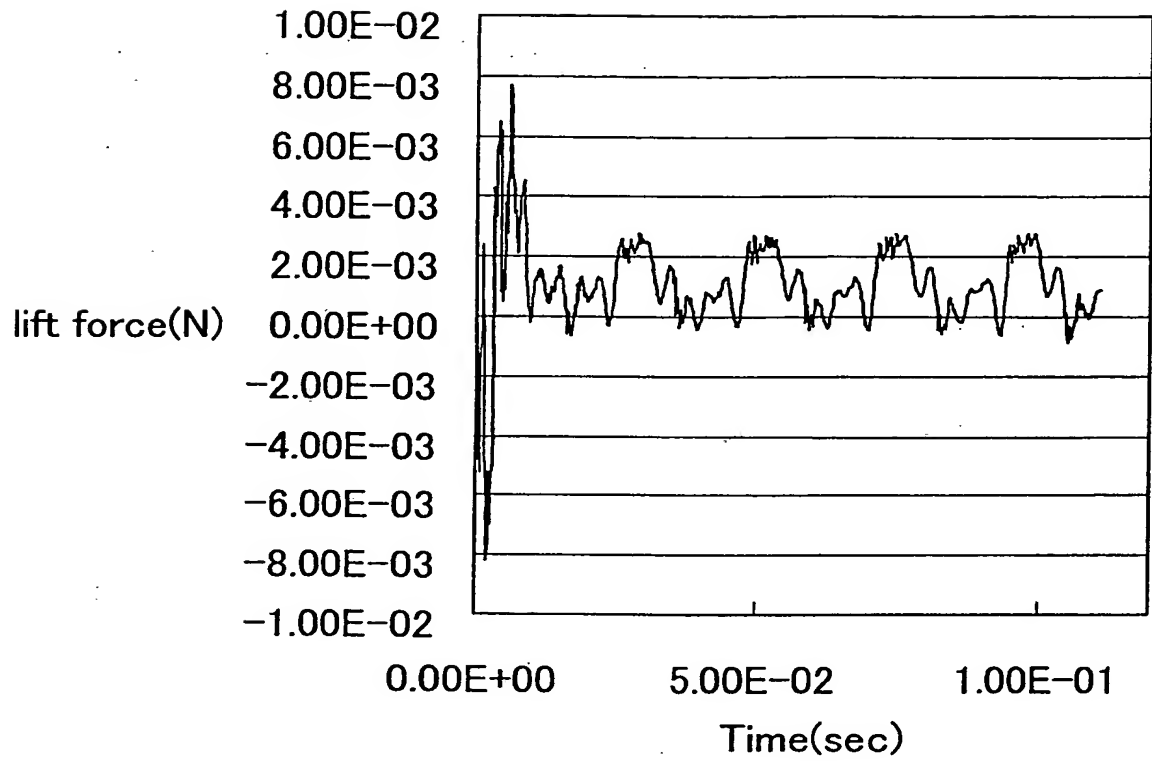


FIG.33

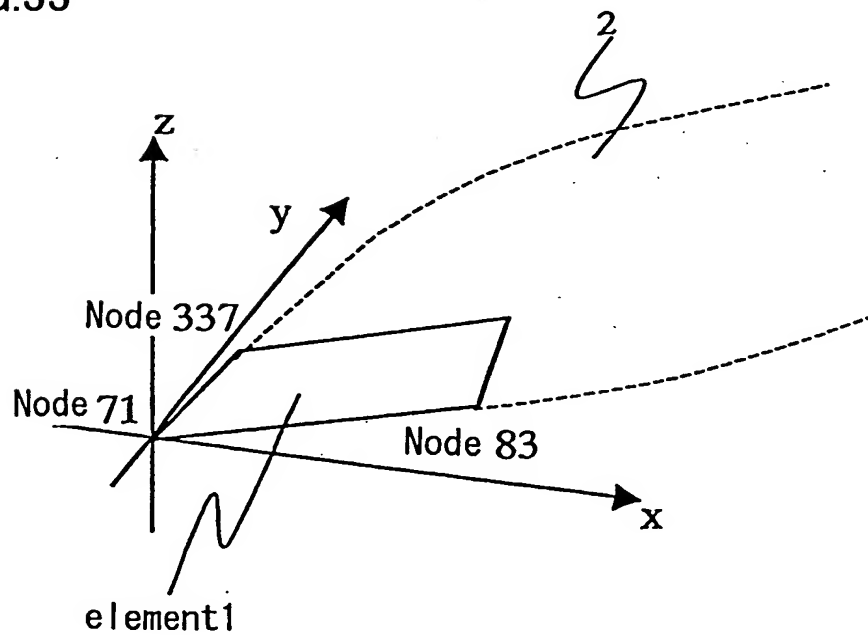


FIG.34

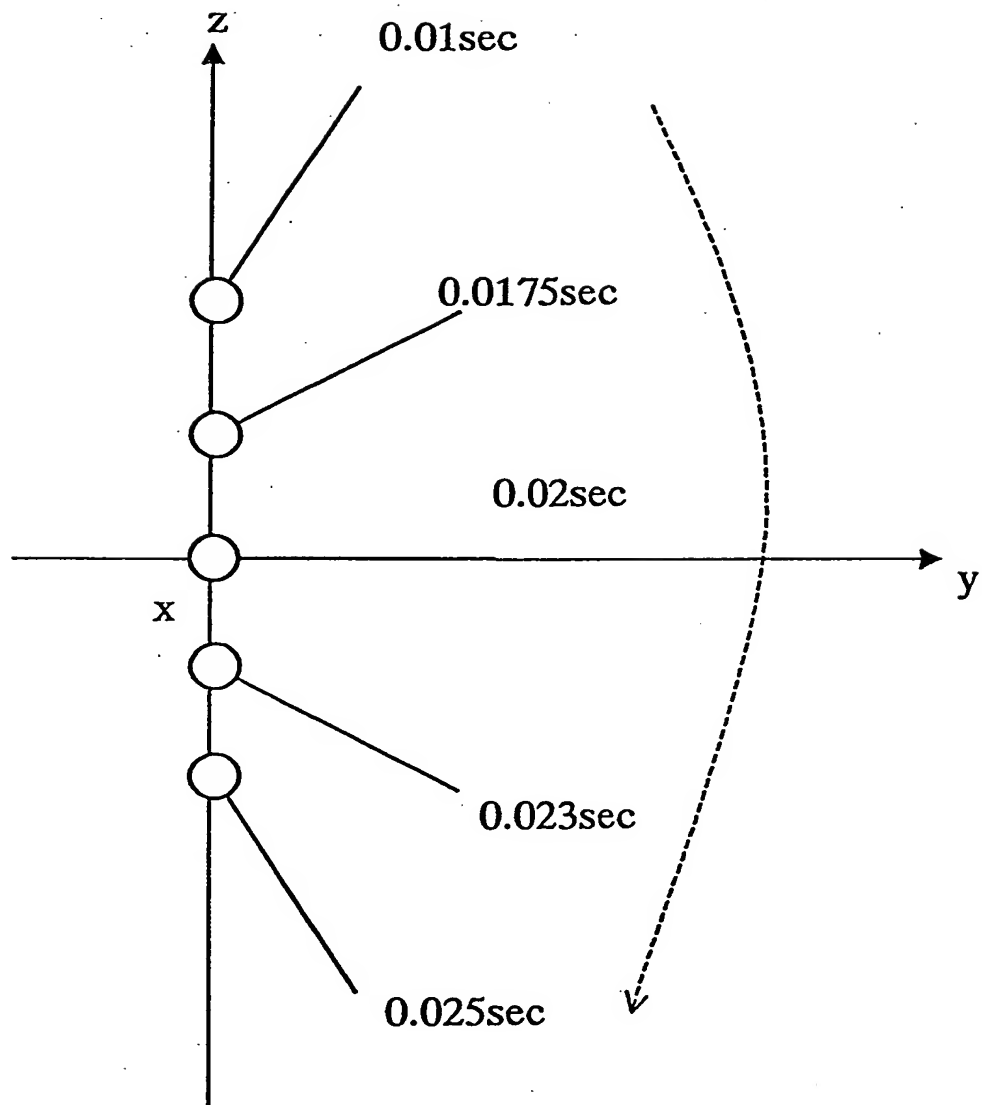


FIG.35

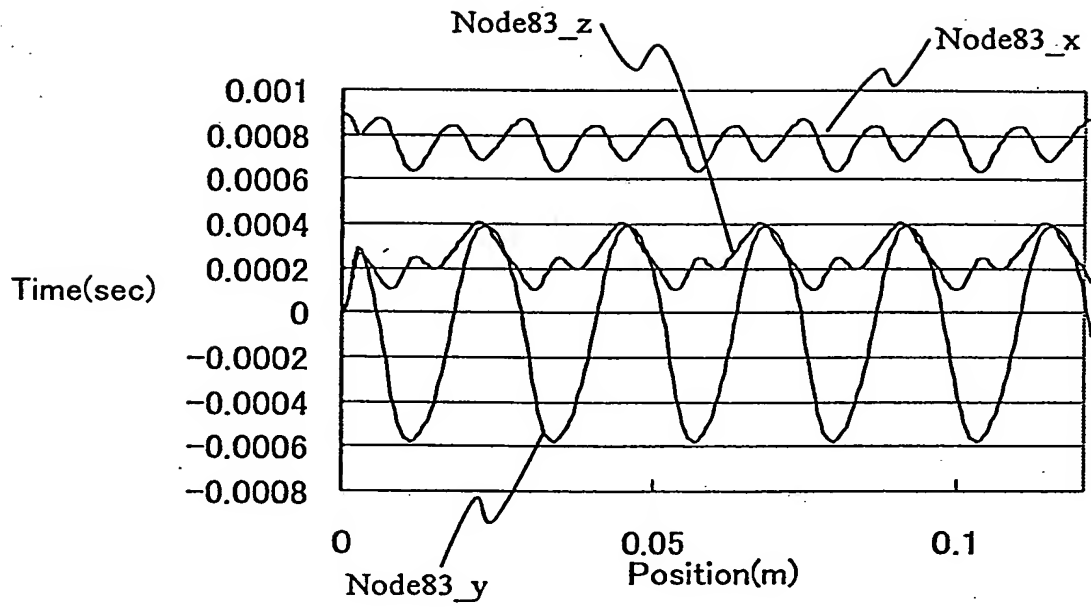


FIG.36

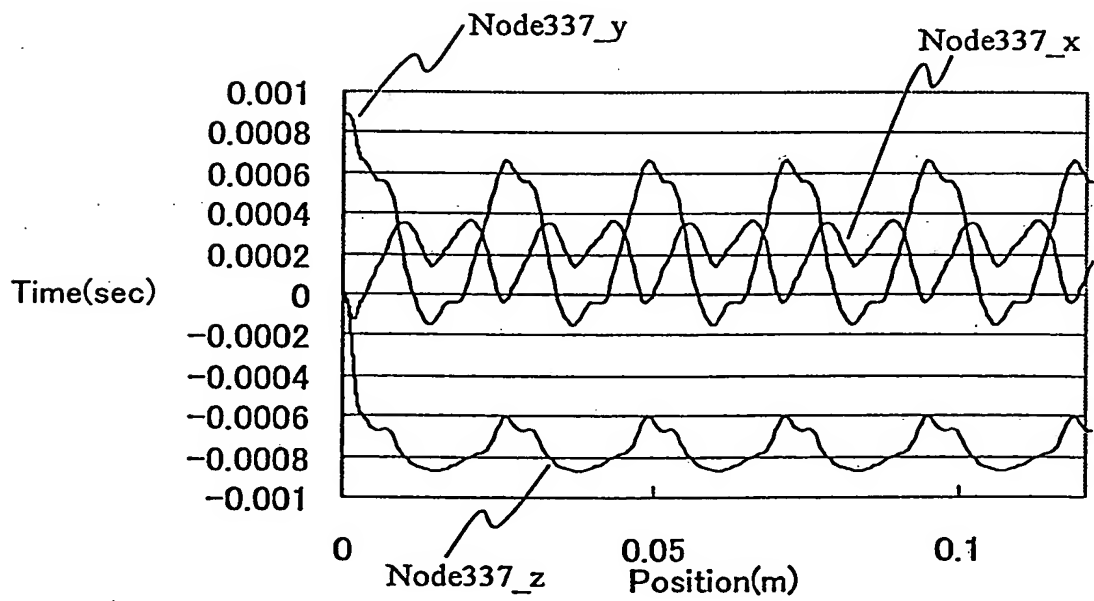


FIG.37

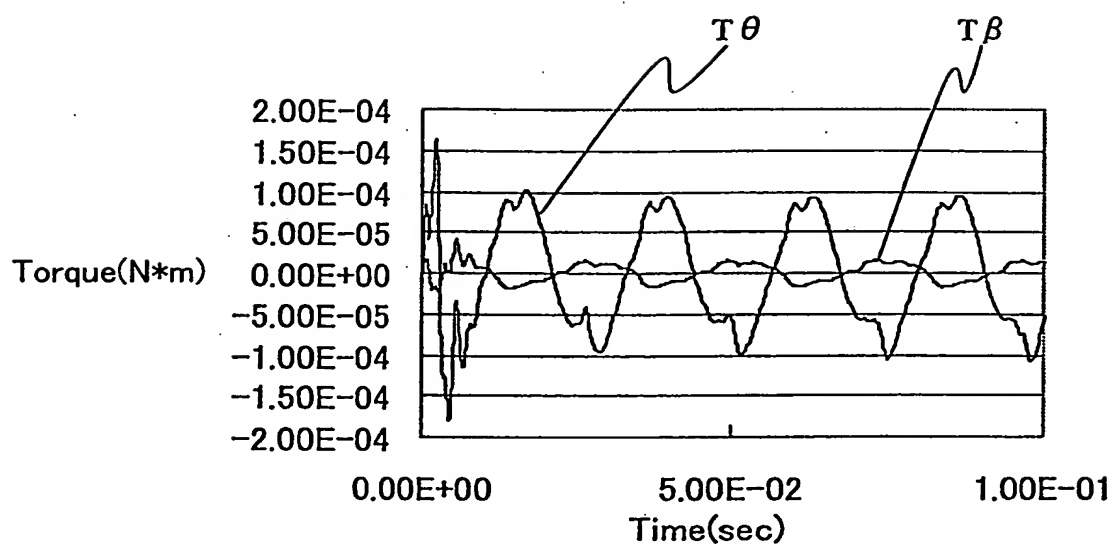


FIG.38

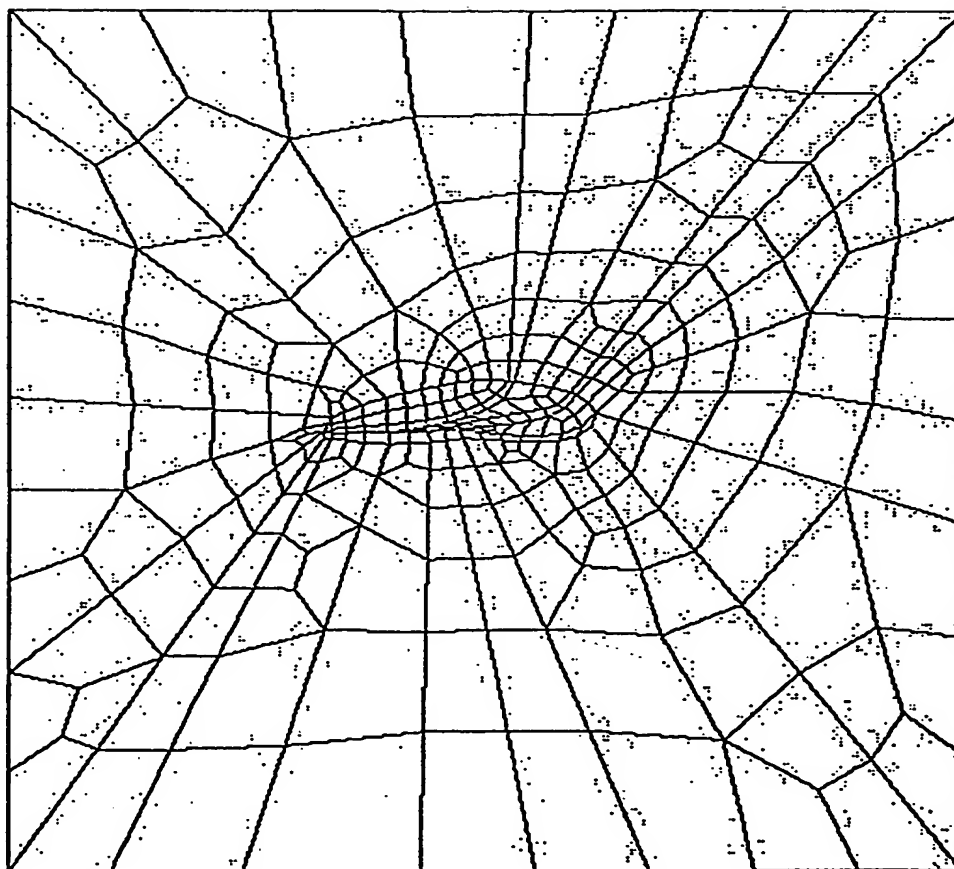


FIG.39

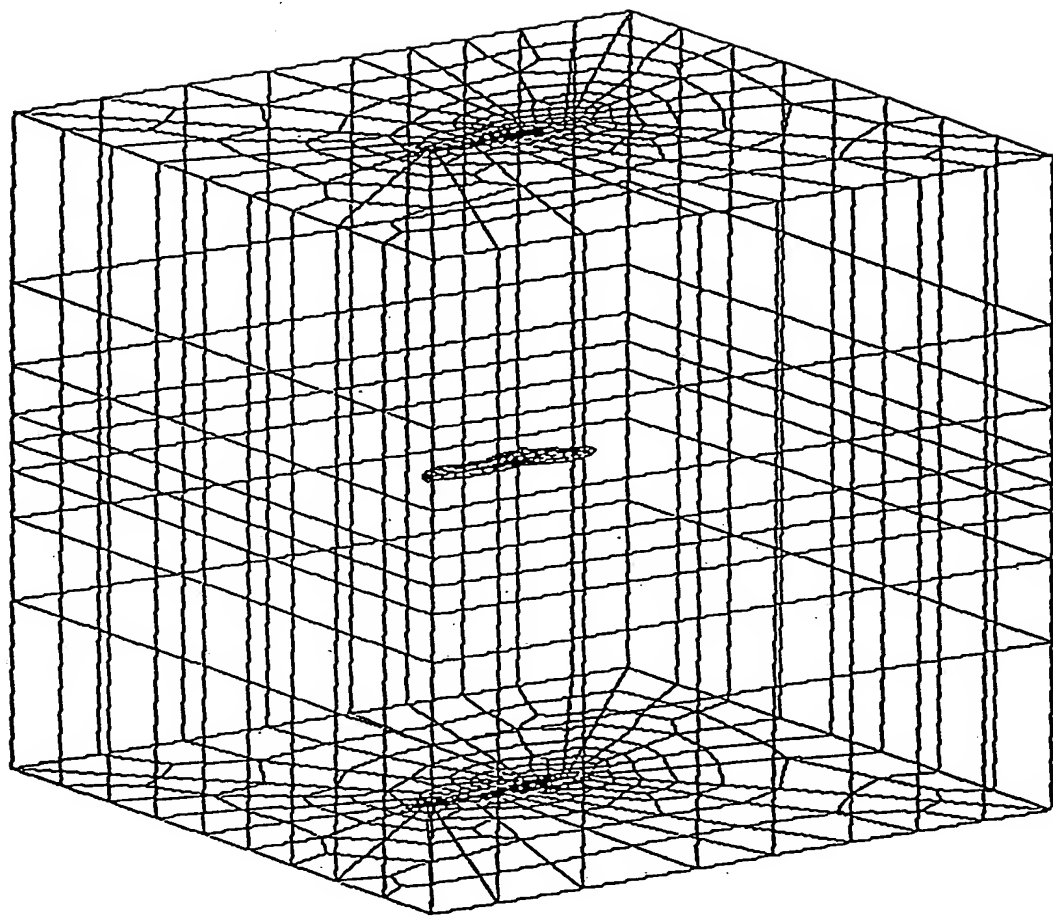


FIG.40

VERTICAL COMPONENT OF
FULCRUM REACTION(N)

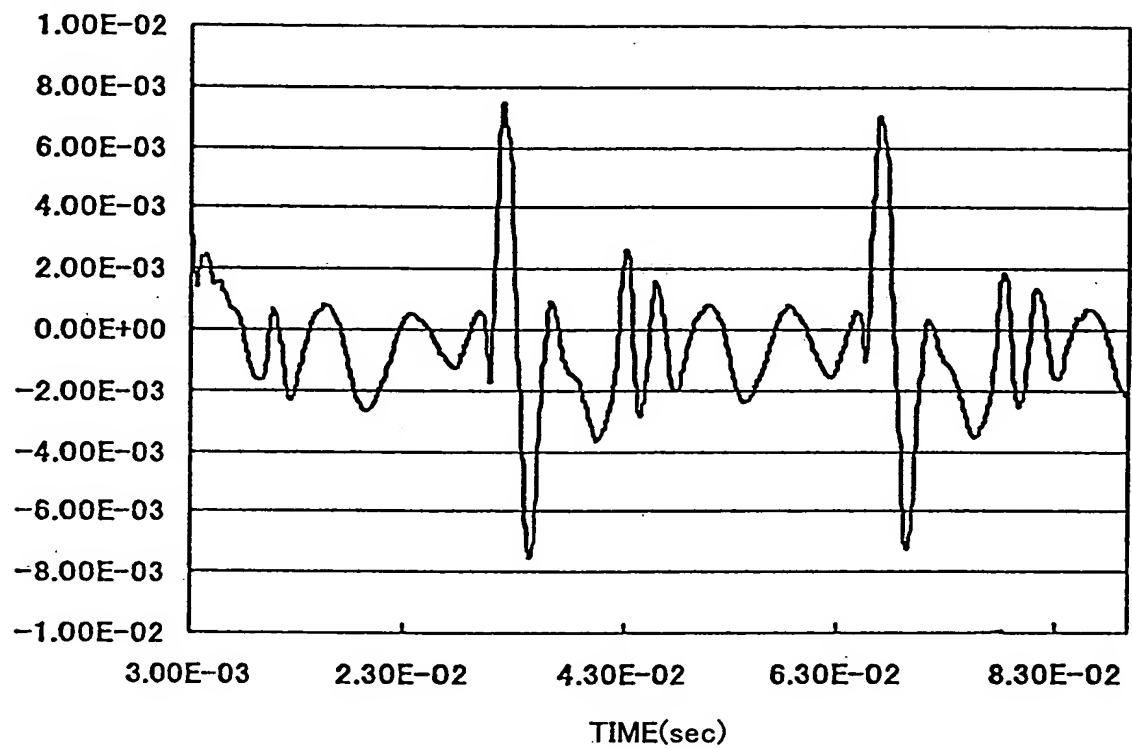


FIG.41

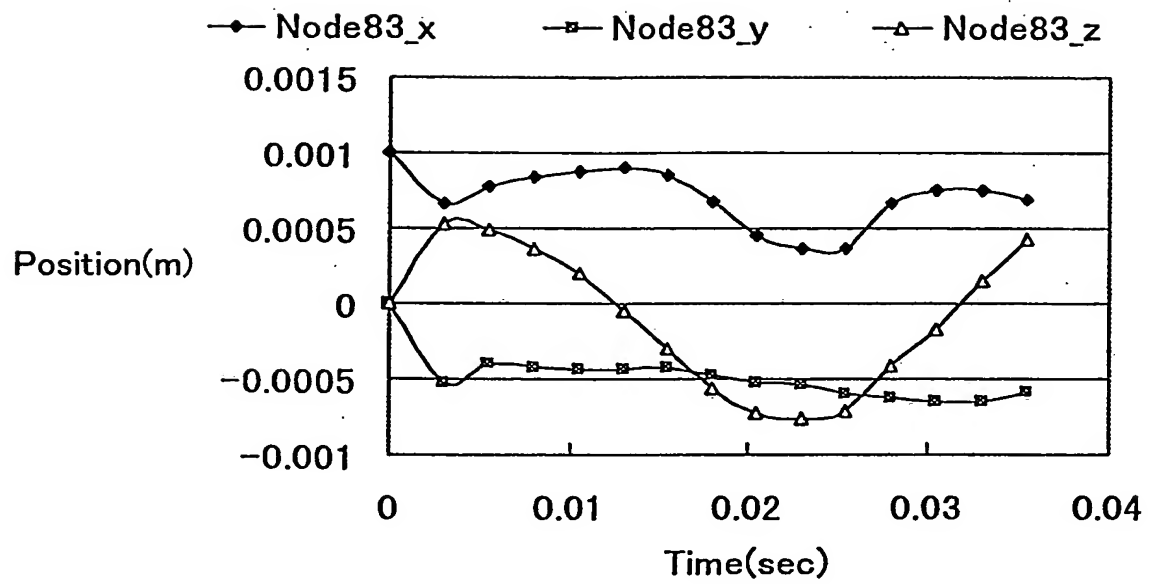


FIG.42

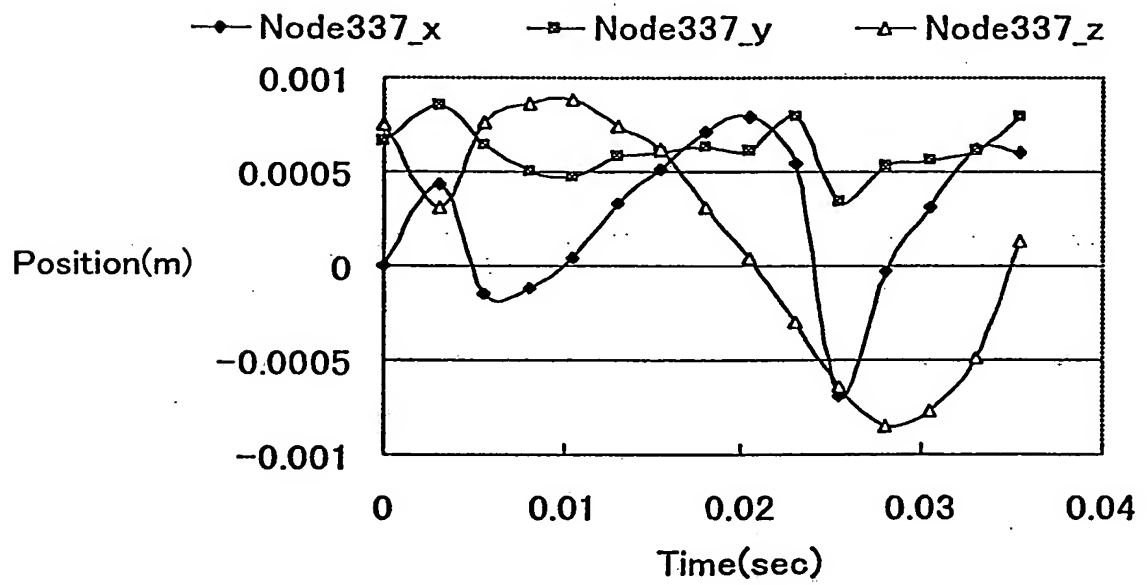


FIG.43

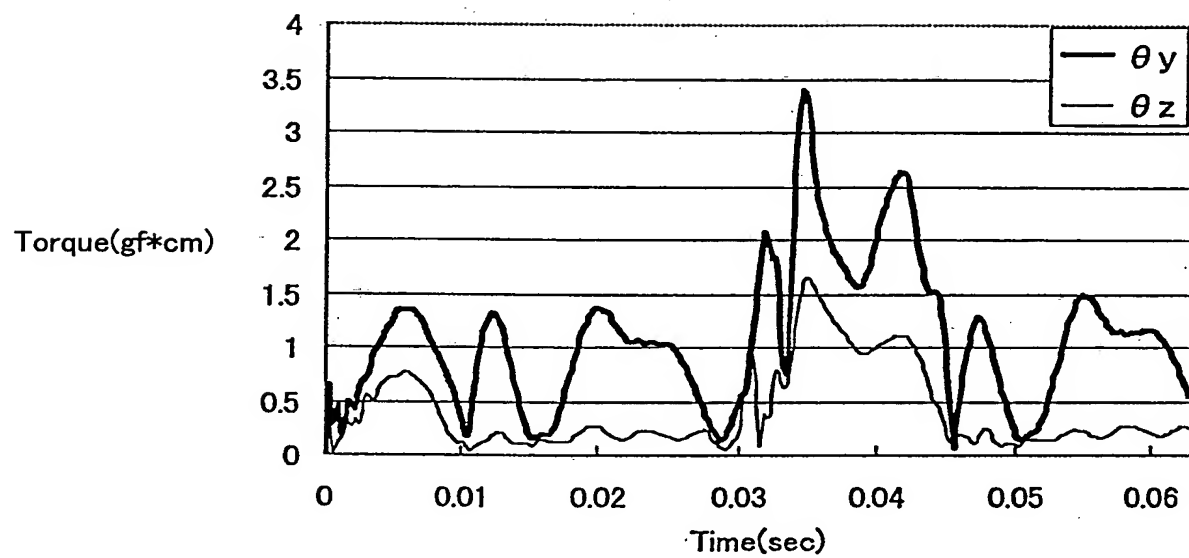


FIG.44

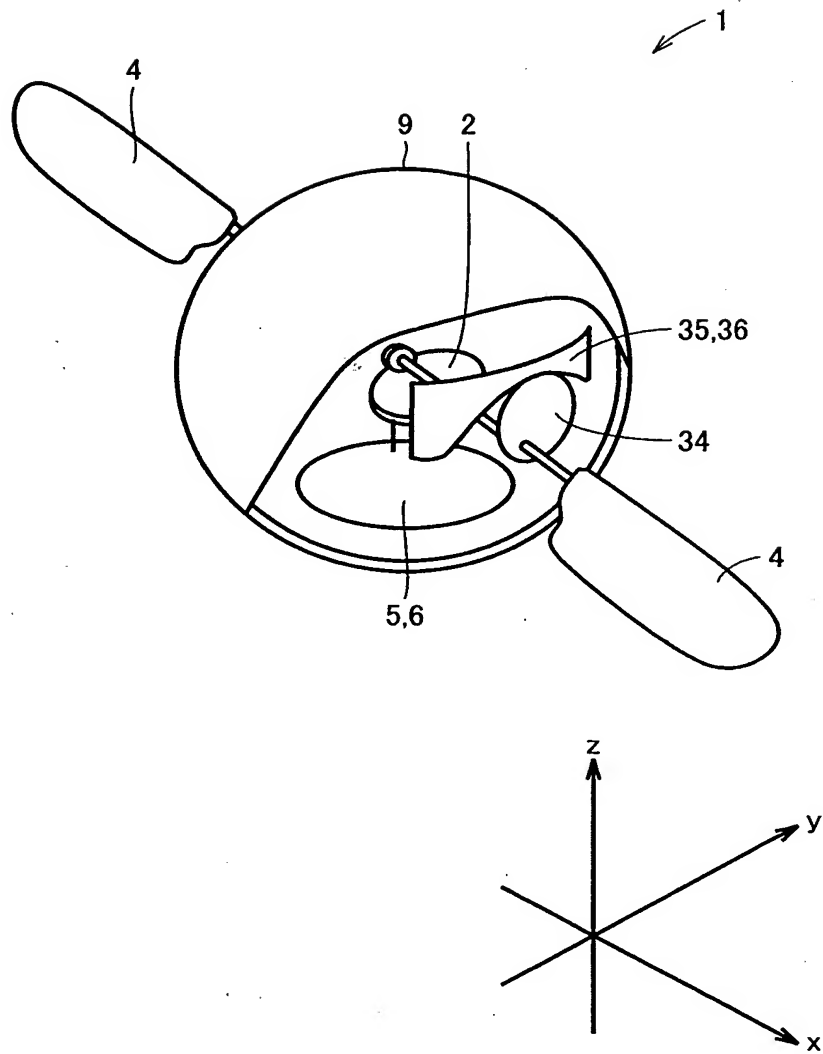


FIG.45

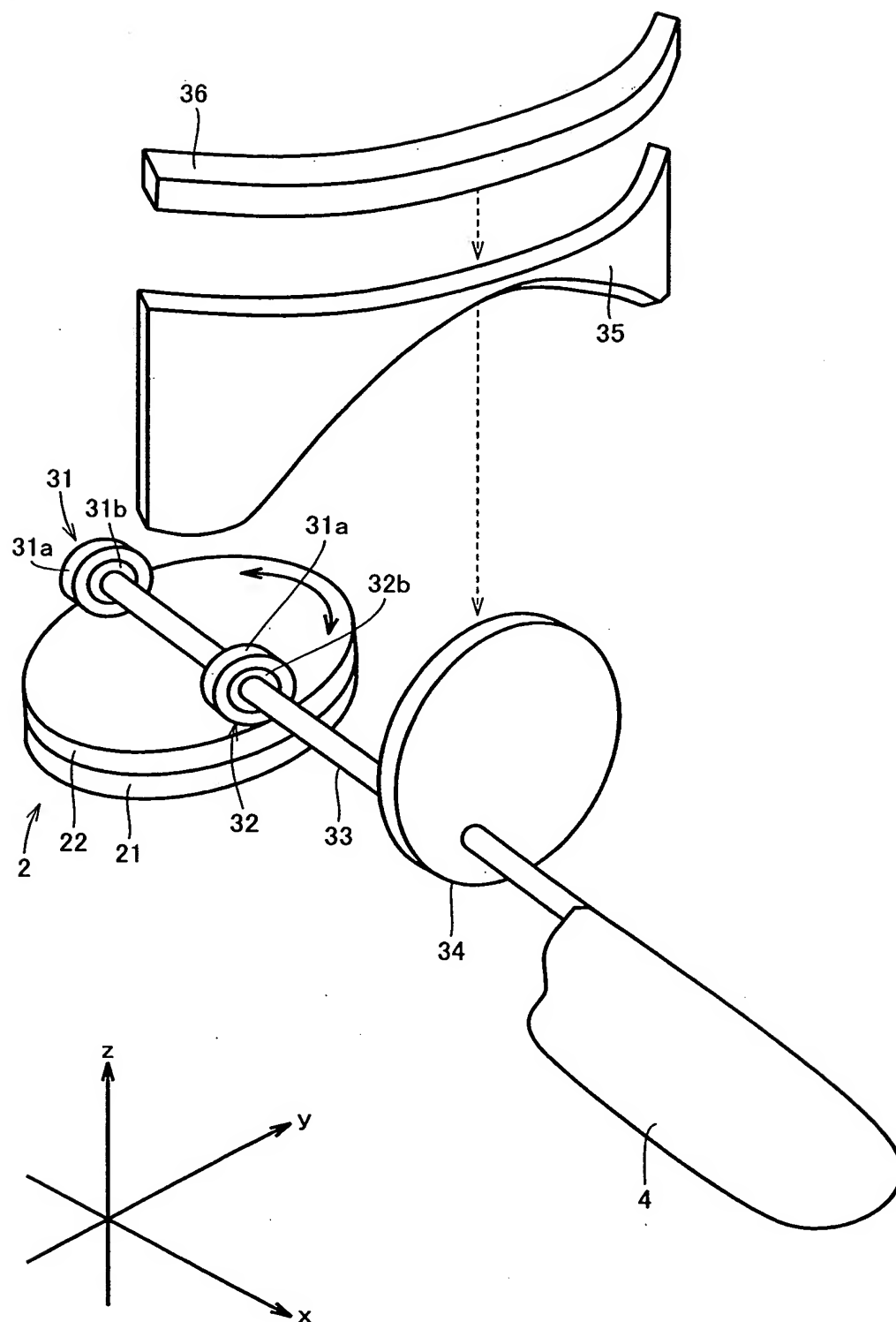


FIG.46

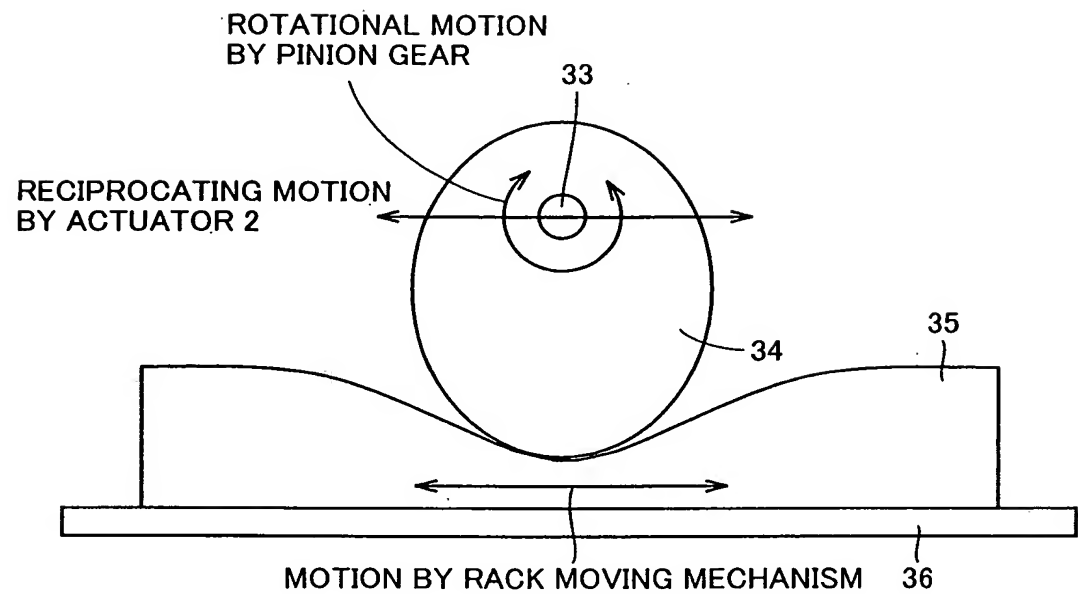


FIG.47

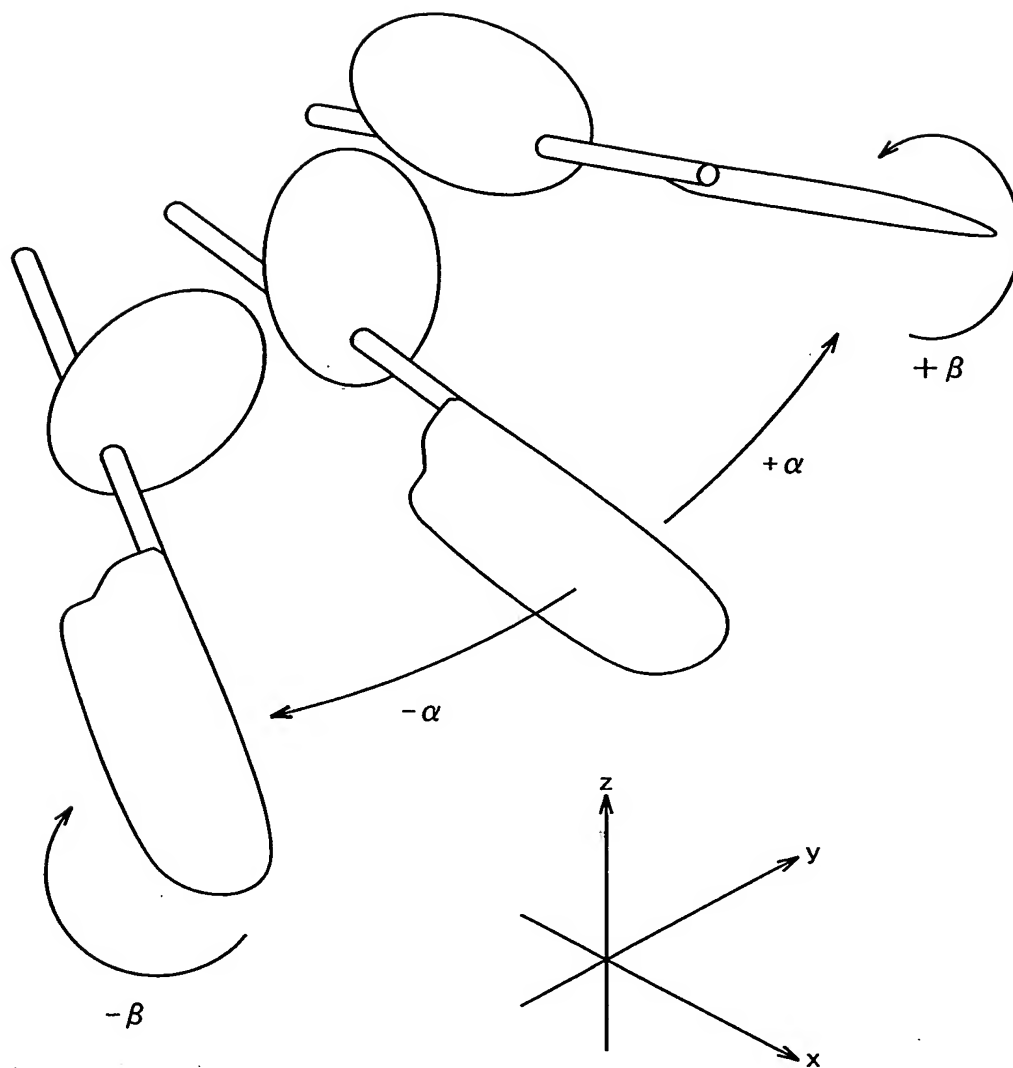


FIG.48

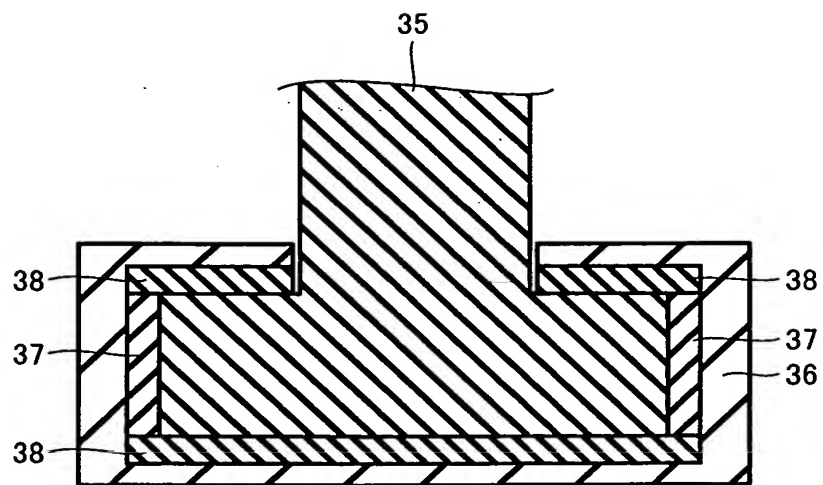


FIG.49

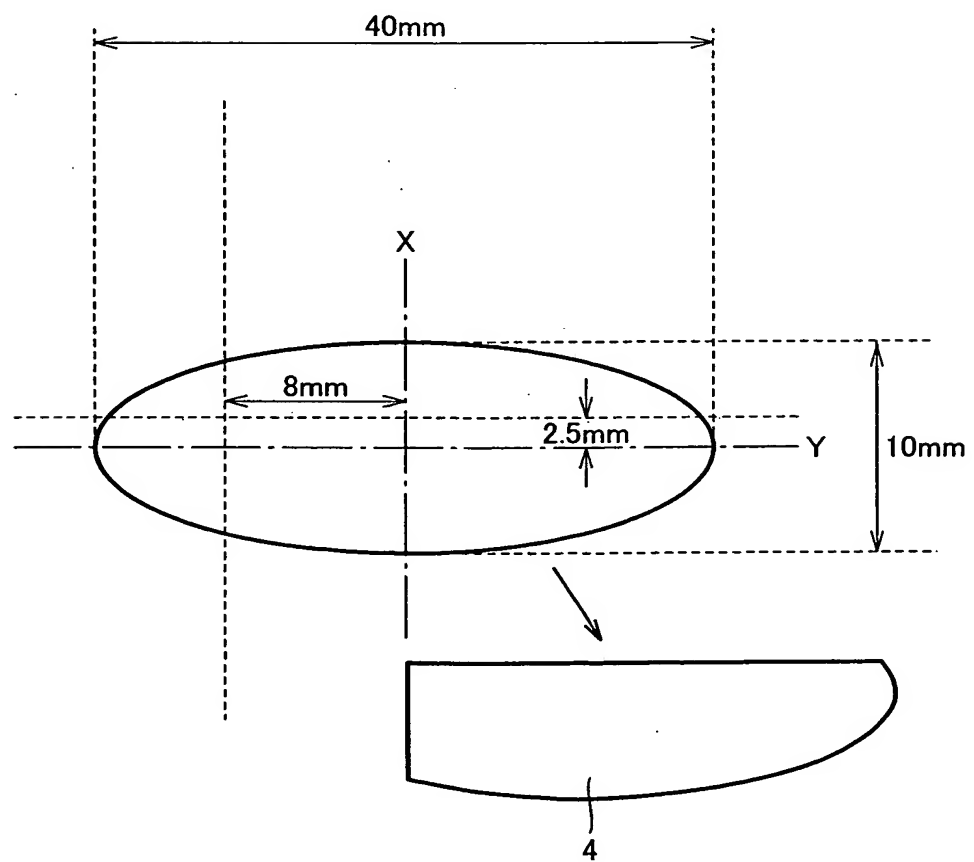


FIG.50

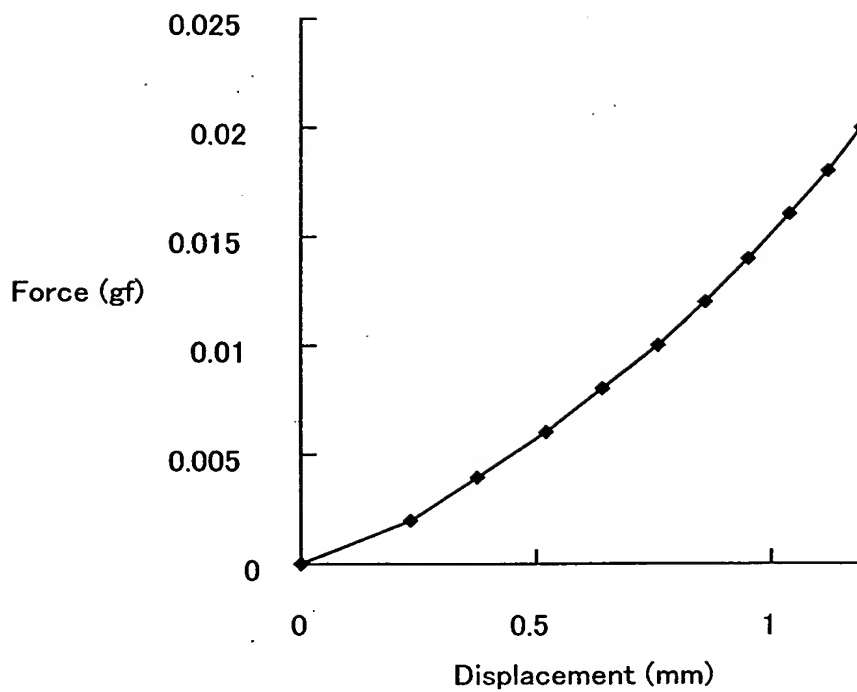


FIG.51

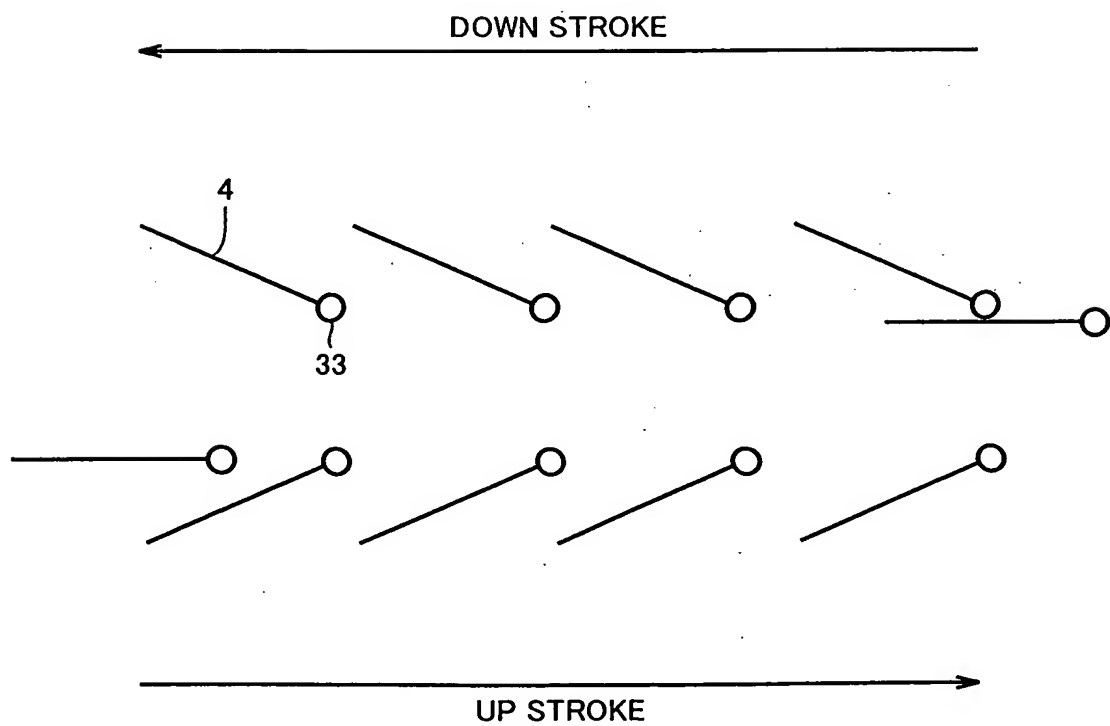


FIG.52

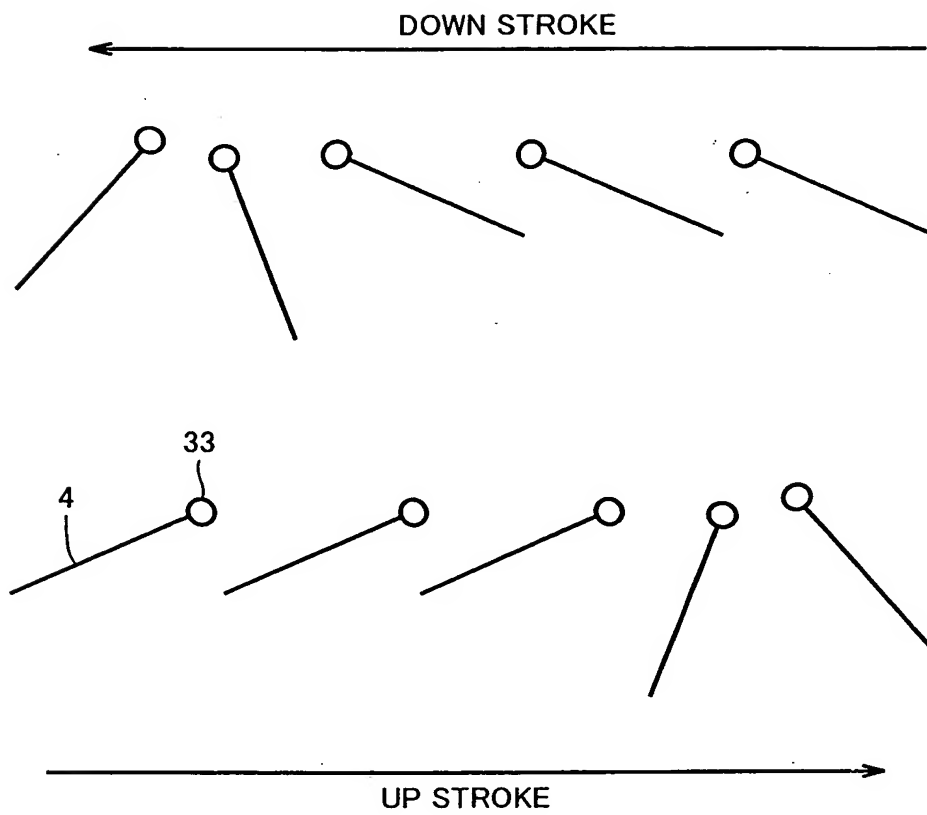


FIG.53

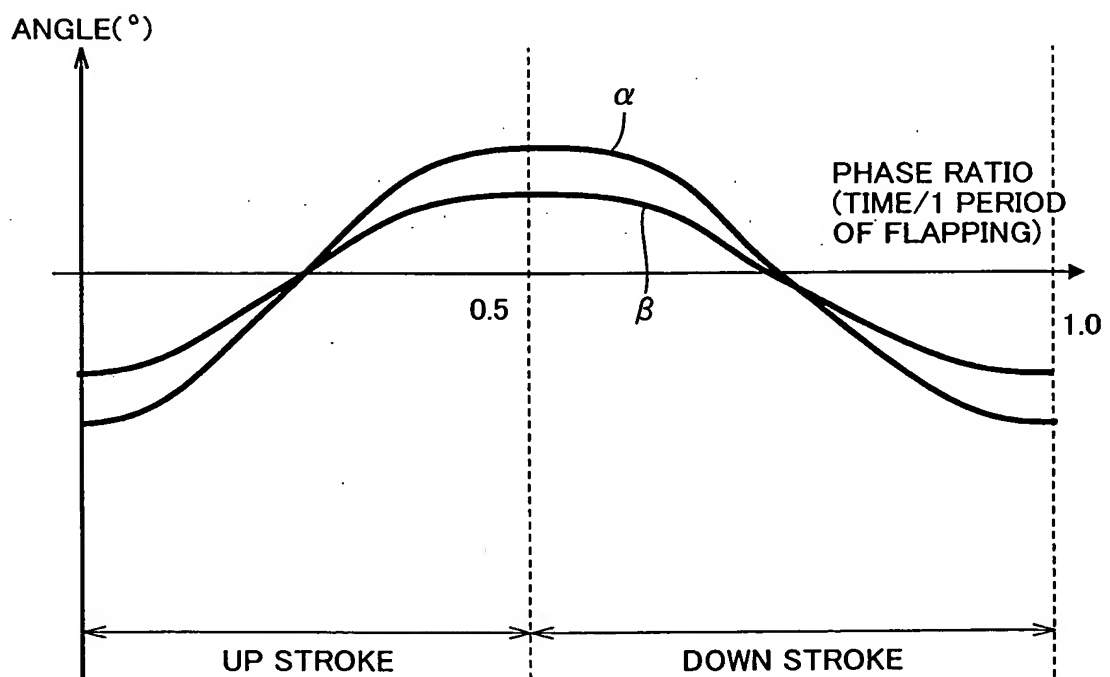


FIG.54

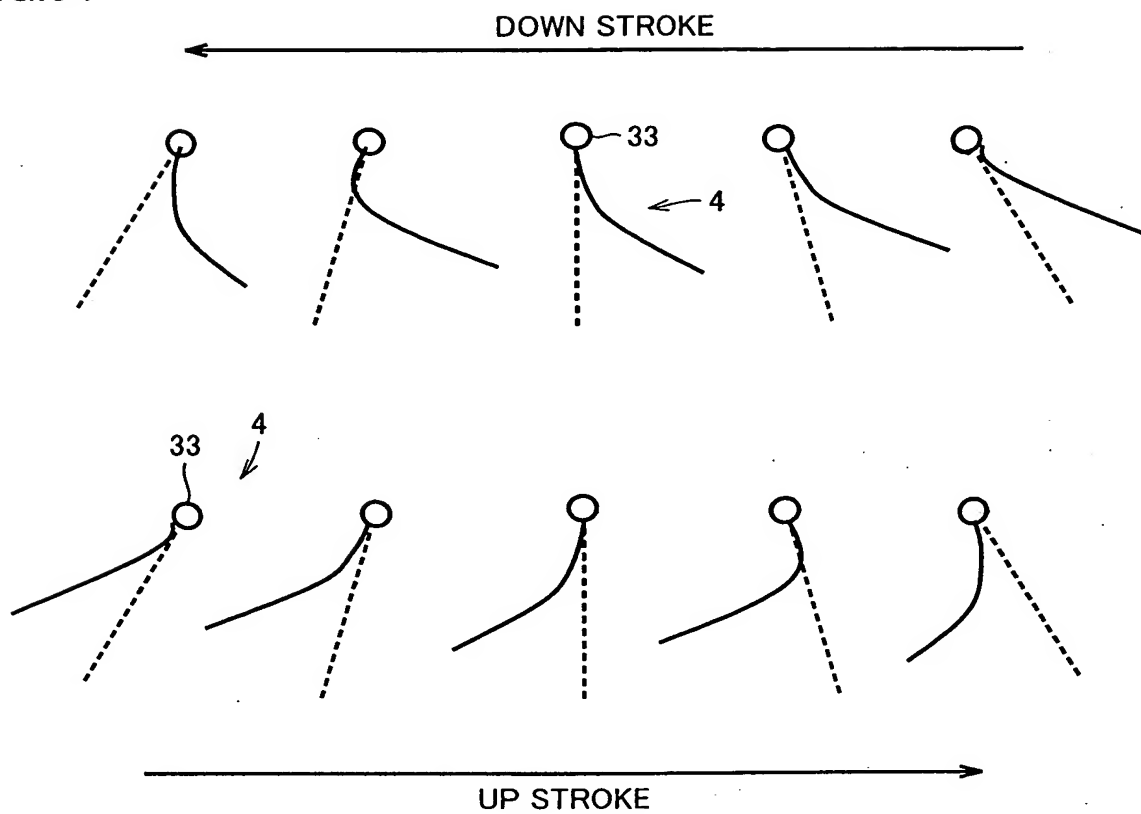


FIG.55

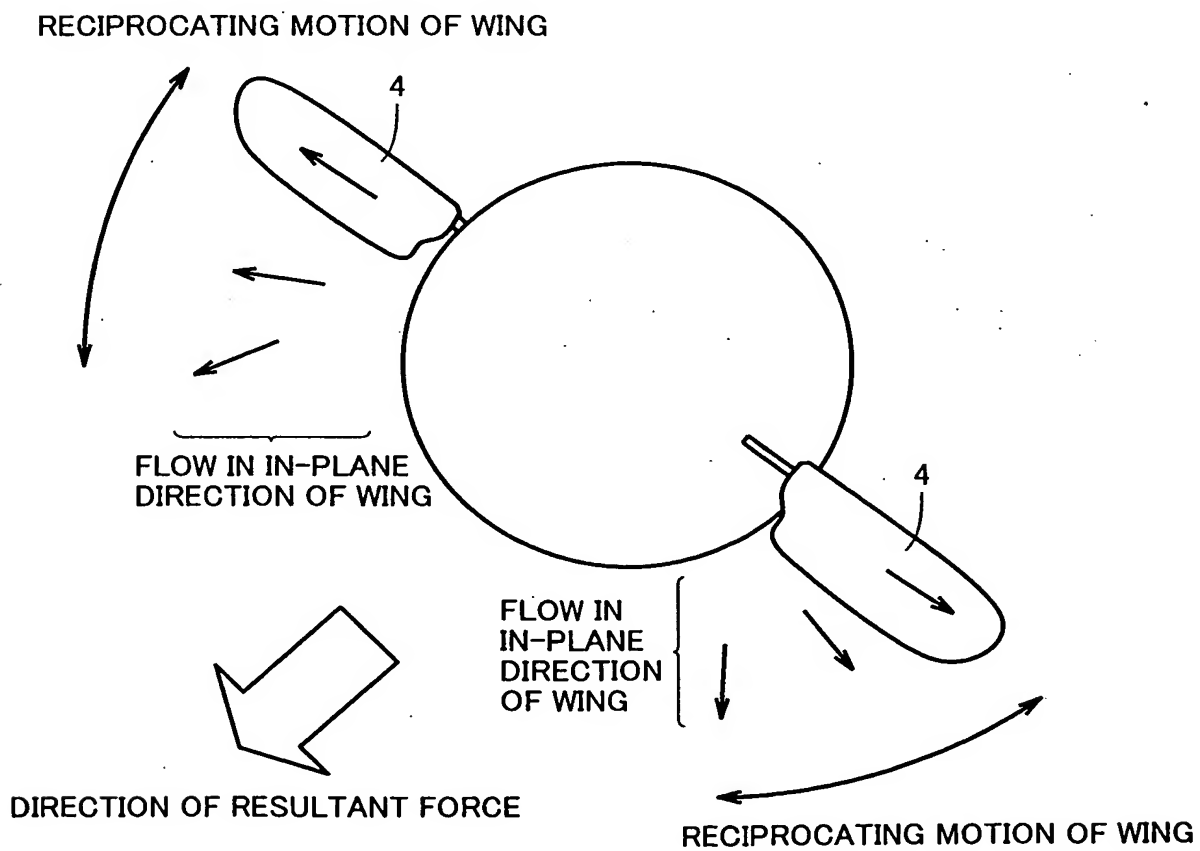


FIG.56

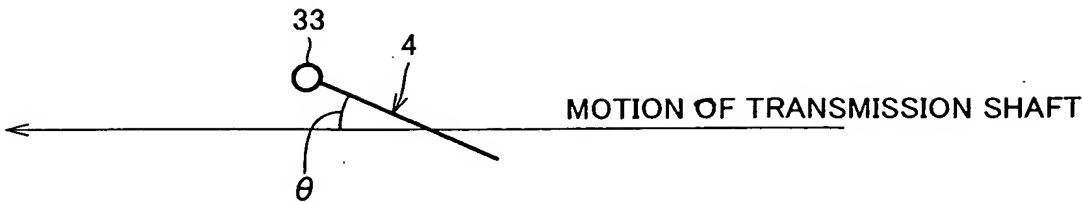


FIG57

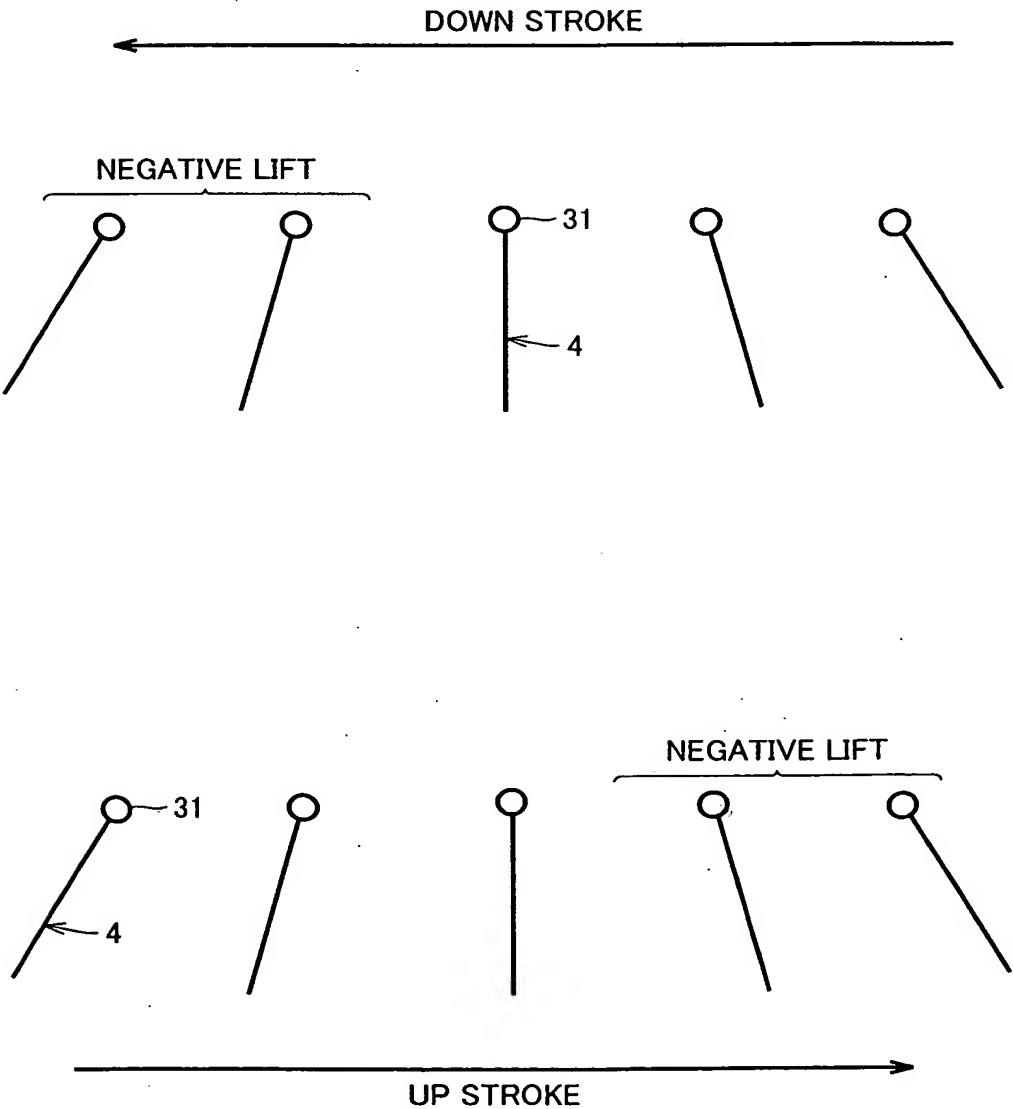


FIG.58

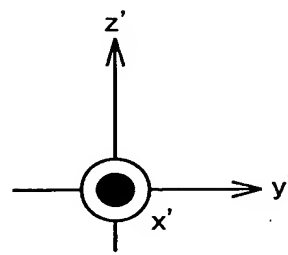
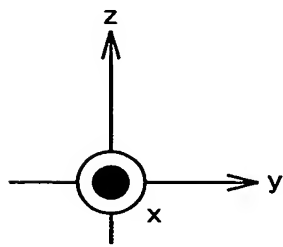
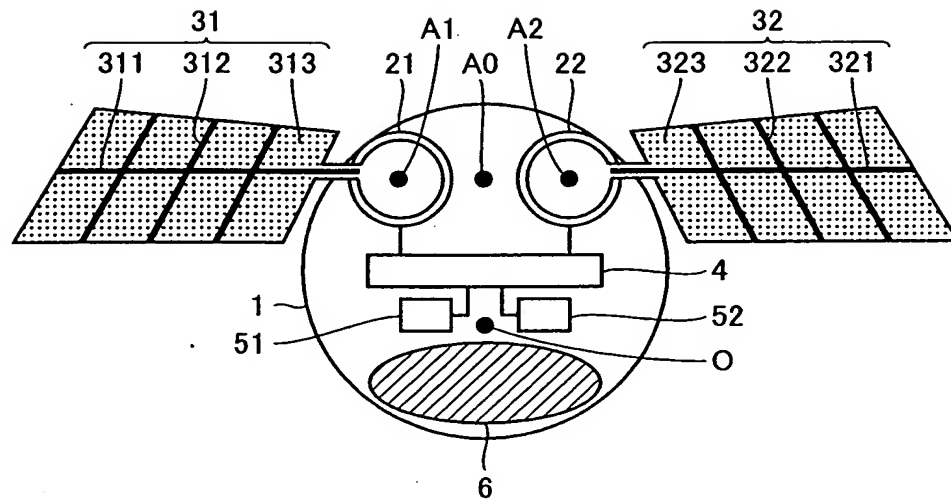


FIG.59

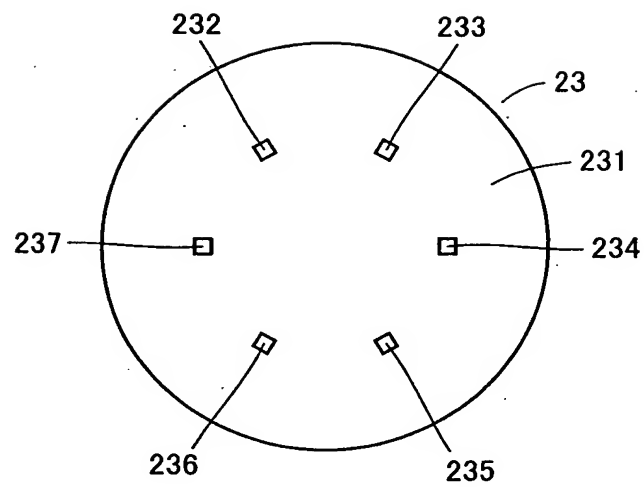


FIG.60

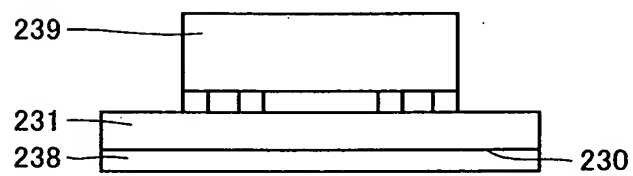


FIG.61

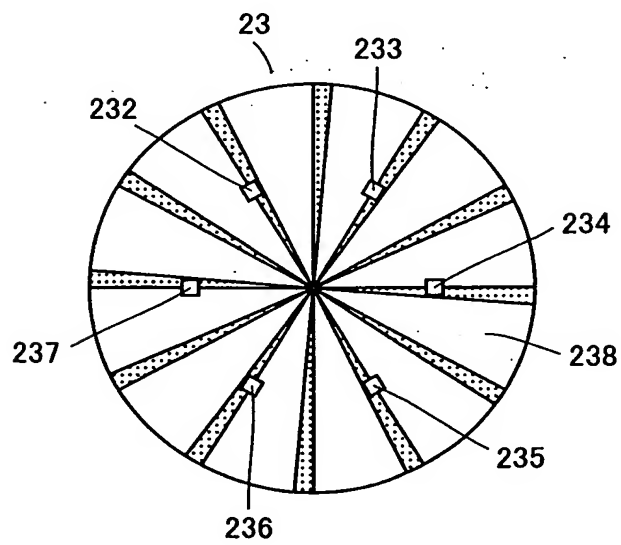


FIG.62

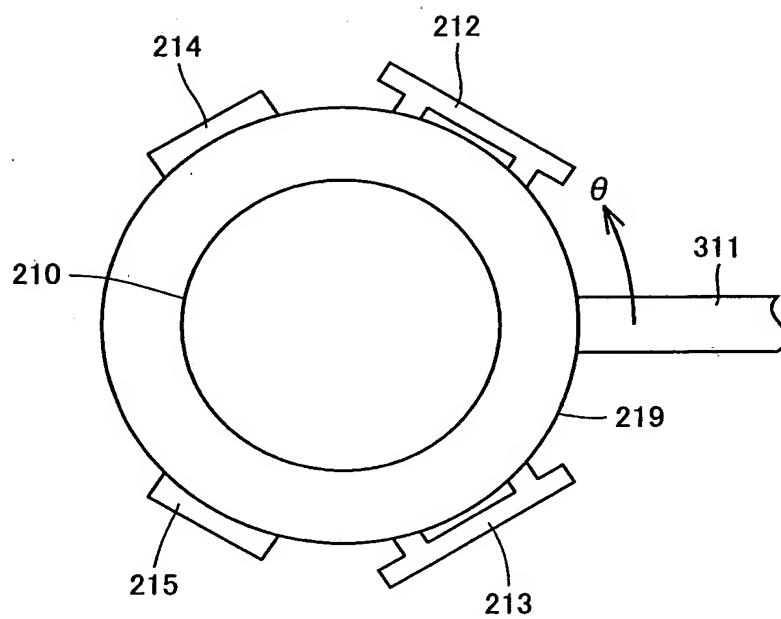


FIG.63

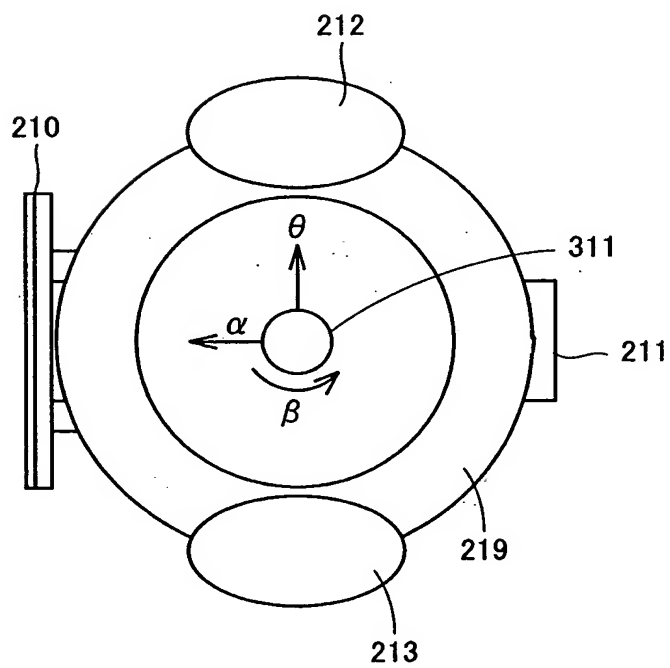


FIG.64

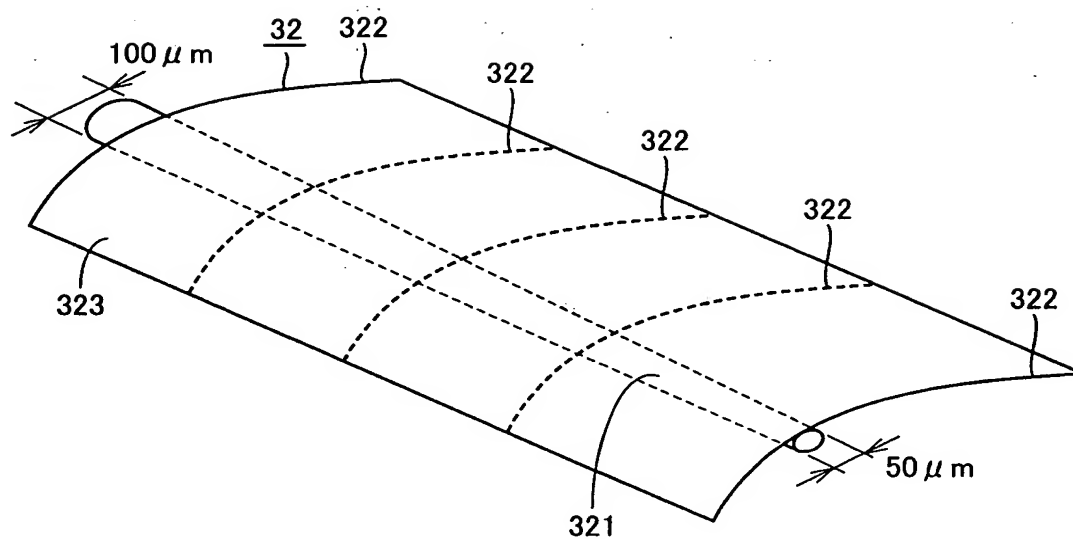


FIG.65

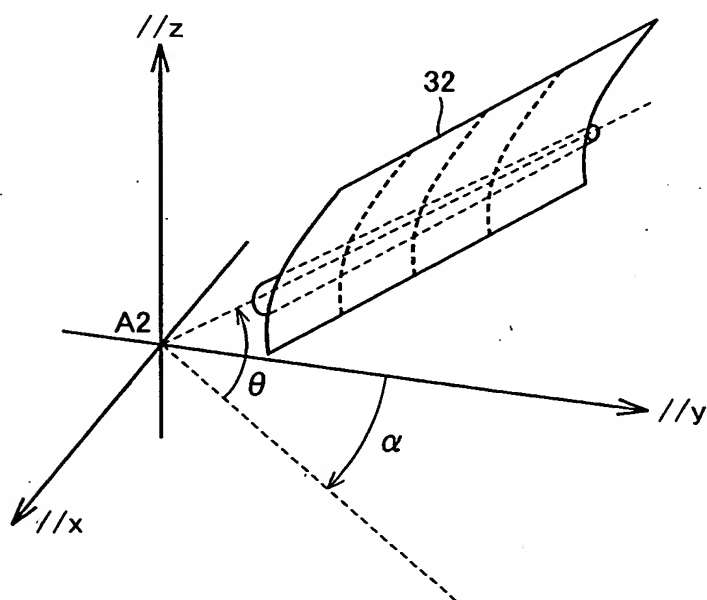


FIG.68

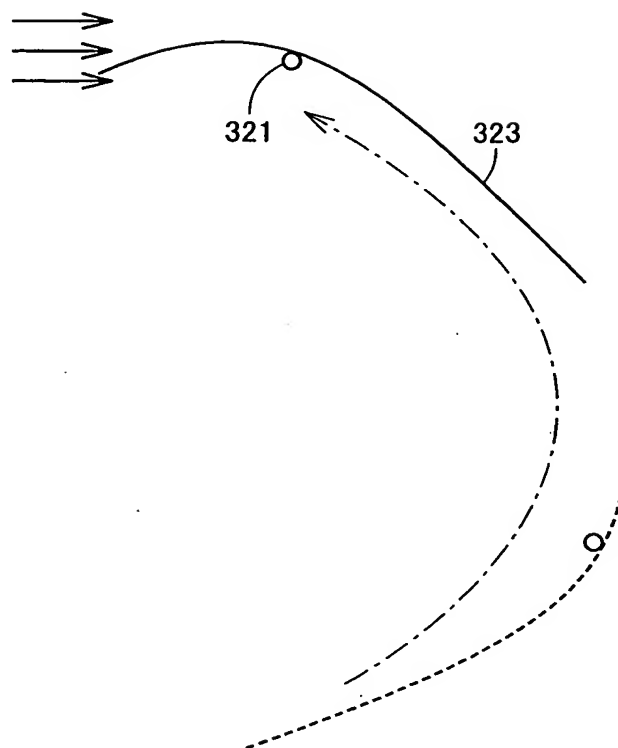


FIG.69

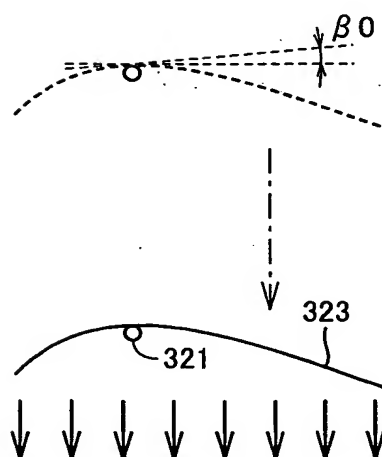


FIG.70

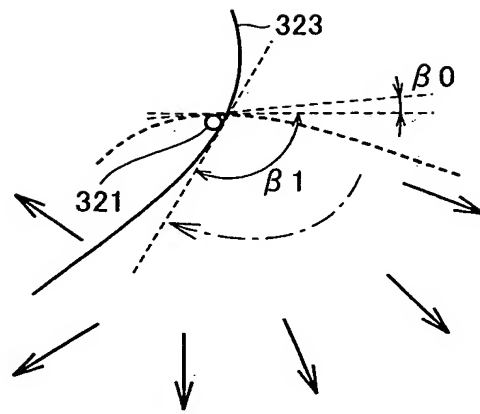


FIG.71

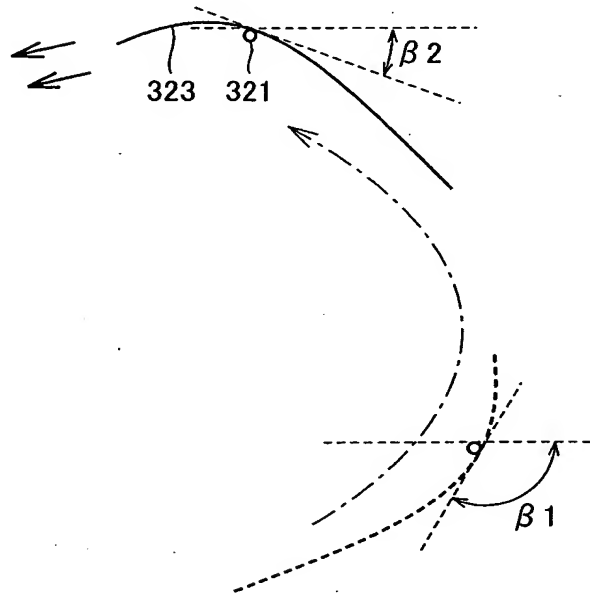


FIG.72

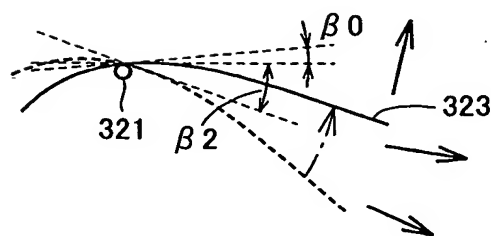


FIG.73

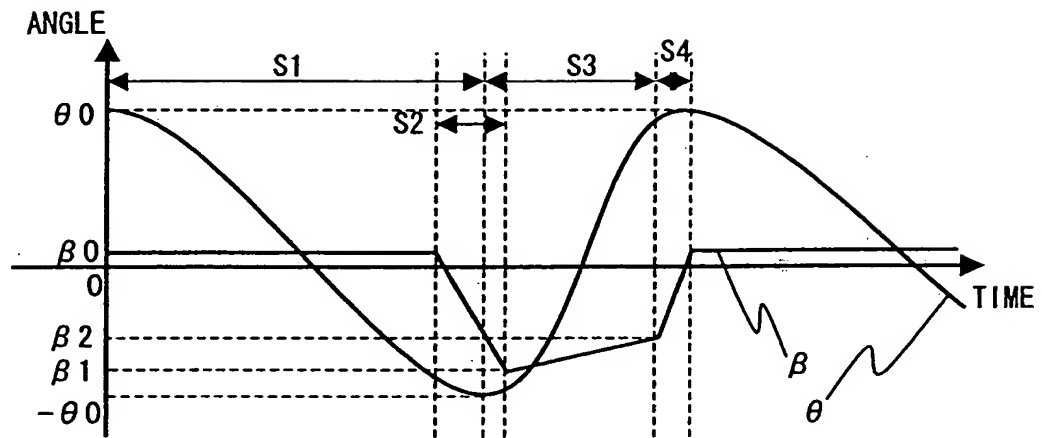


FIG.74

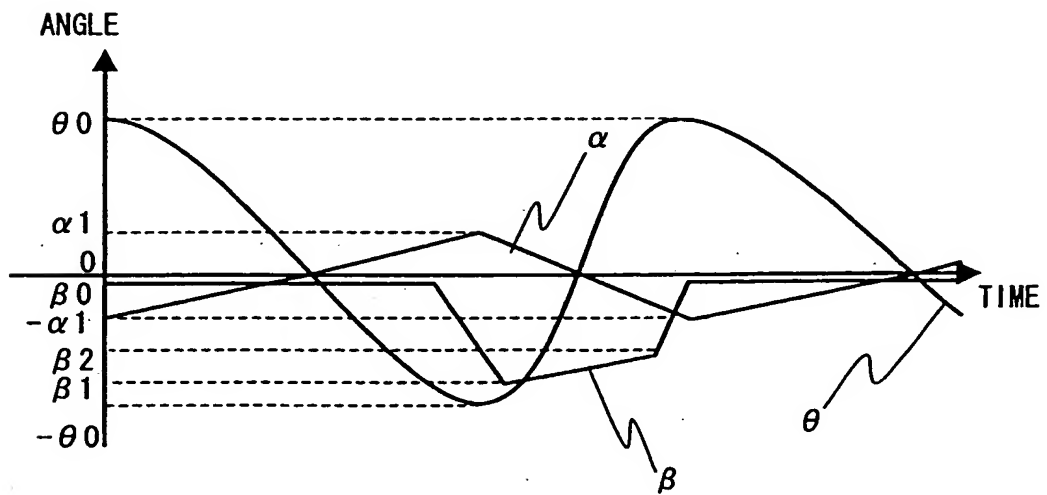


FIG.75

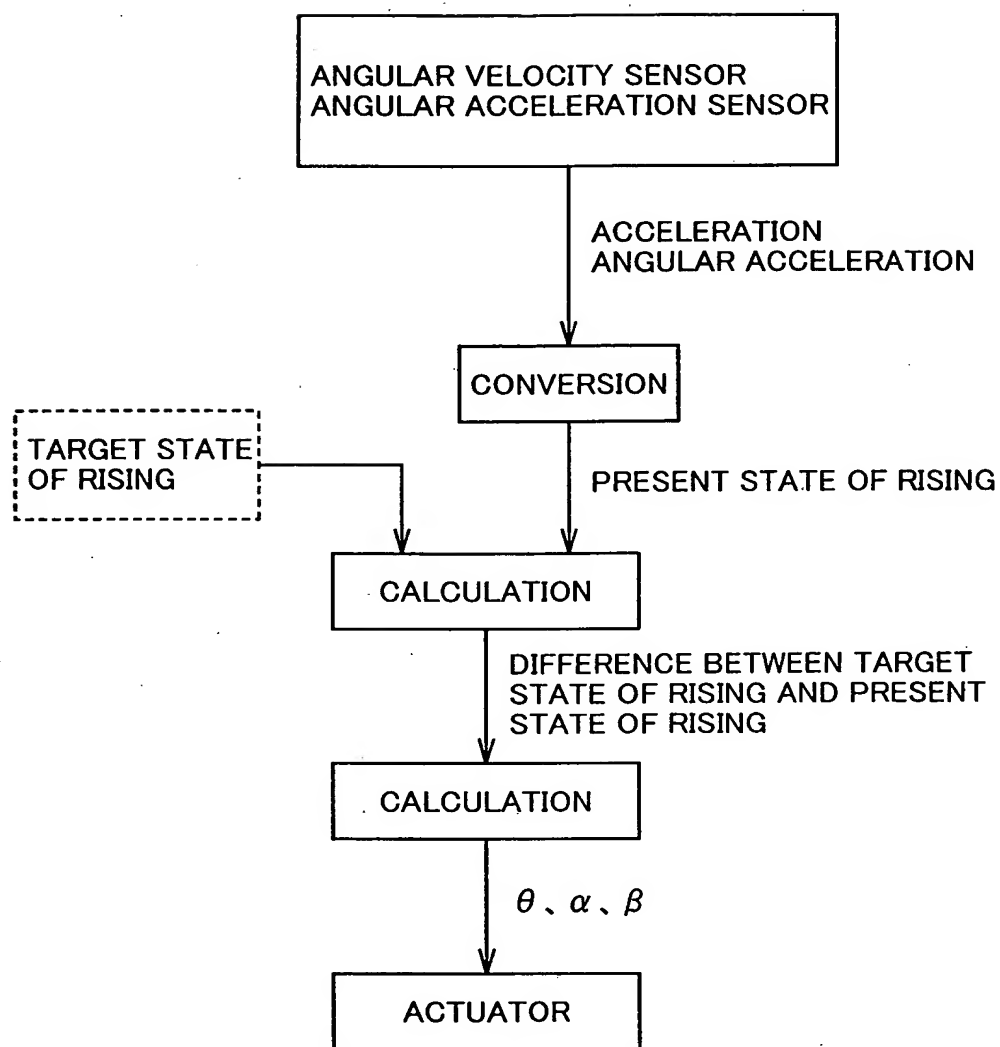


FIG.76

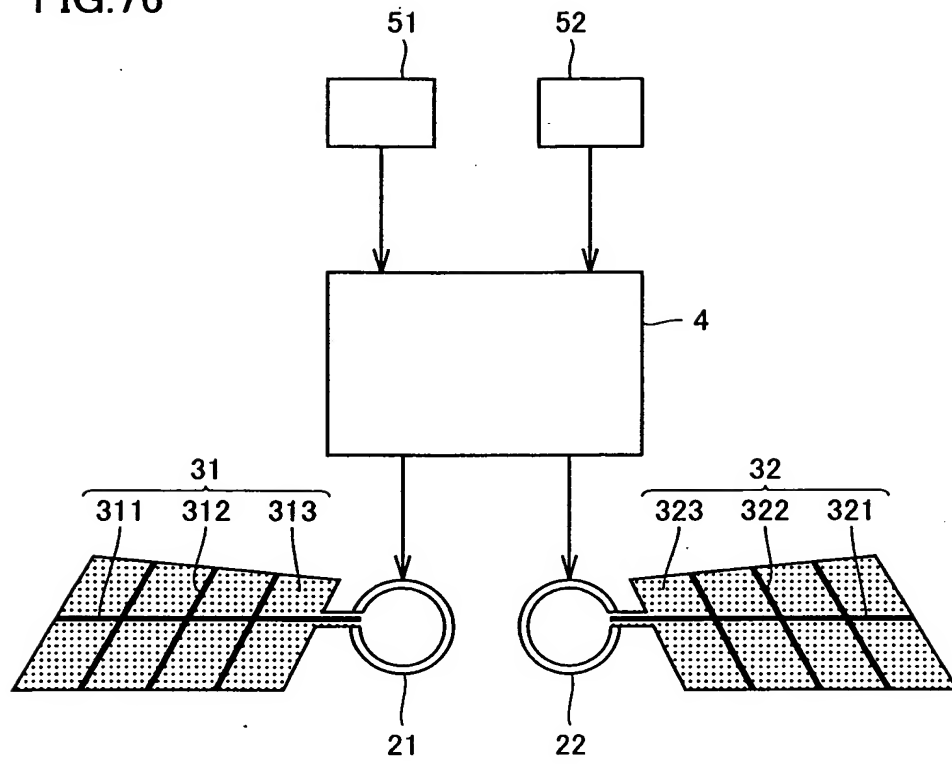


FIG.77

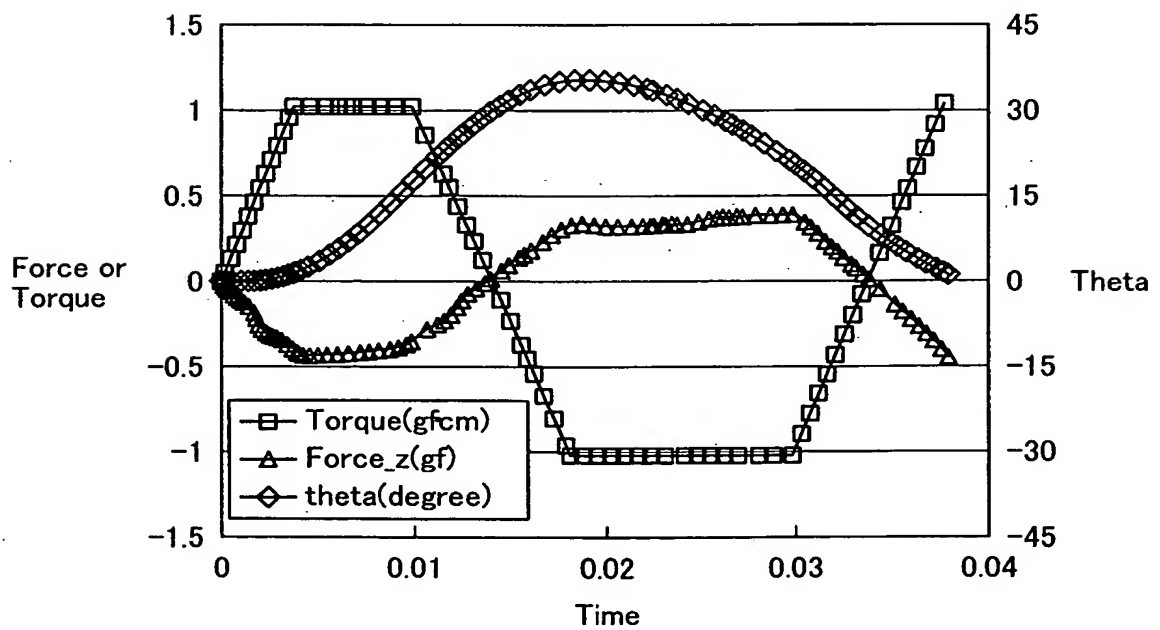


FIG.78

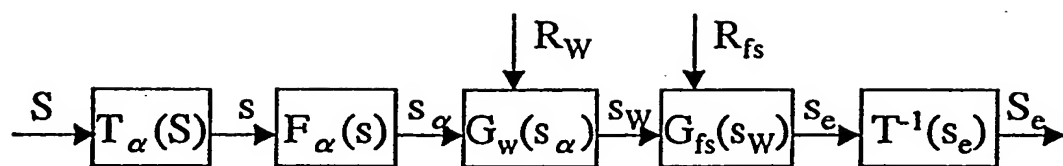


FIG.79

		$x''+$	$x''-$	$z''+$	$z''-$	$\theta y''+$	$\theta y''-$
S1	θ amplitude large			●			
	θ amplitude small				●		
	$-d\theta/dt$ large			●			
	$-d\theta/dt$ small				●		
	$-d\alpha/d\theta > d\alpha_{th}$	●					
	$-d\alpha/d\theta < d\alpha_{th}$		●				
	β is vertical to down stroke direction			●			
	β is not vertical to down stroke direction				●		
	$\beta > 0$	●					
	$\beta < 0$		●				
S2	$-d\beta/dt$ large	●		●		●	
	$-d\beta/dt$ small		●		●		●
S3	θ amplitude large				●		
	θ amplitude small			●			
	$d\theta/dt$ large				●		
	$d\theta/dt$ small			●			
	$d\alpha/d\theta > d\alpha_{th}$		●				
	$d\alpha/d\theta < d\alpha_{th}$	●					
	β is vertical to up stroke direction				●		
	β is not vertical to up stroke direction			●			
S4	$d\beta/dt$ large	●			●		●
	$d\beta/dt$ small		●	●		●	

FIG.80

	RIGHT ACTUATOR		LEFT ACTUATOR	
	DRIVING FRQ.	FLAPPING	DRIVING FRQ.	FLAPPING
UP	35 Hz	B	35 Hz	B
DOWN	25 HZ	B	25 Hz	B
GO FORWARD	30 HZ	A	30 Hz	A
HOVER	30 HZ	B	30 Hz	B
TURN RIGHT	30 HZ	B	30 Hz	A
TURN LEFT	30 HZ	A	30 Hz	B